2002 FEIS MAUI
LAHAINA WATERSHED FLOOD CONTROL
PROJECT

Environmental Impact Statement Preparation Notice

Lahaina Watershed Flood Control Project

Prepared for:

County of Maui, Department of Public Works and Waste Management, West Maui Soil and Water Conservation District and the Accepting Authority: U.S. Department of Agriculture, Natural Resources and Conservation Service

April 2002

MUNEKIYO & HIRAGA, INC.

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Project Overview

I. PROJECT OVERVIEW

A. PROJECT LOCATION, EXISTING USE, AND LAND OWNERSHIP

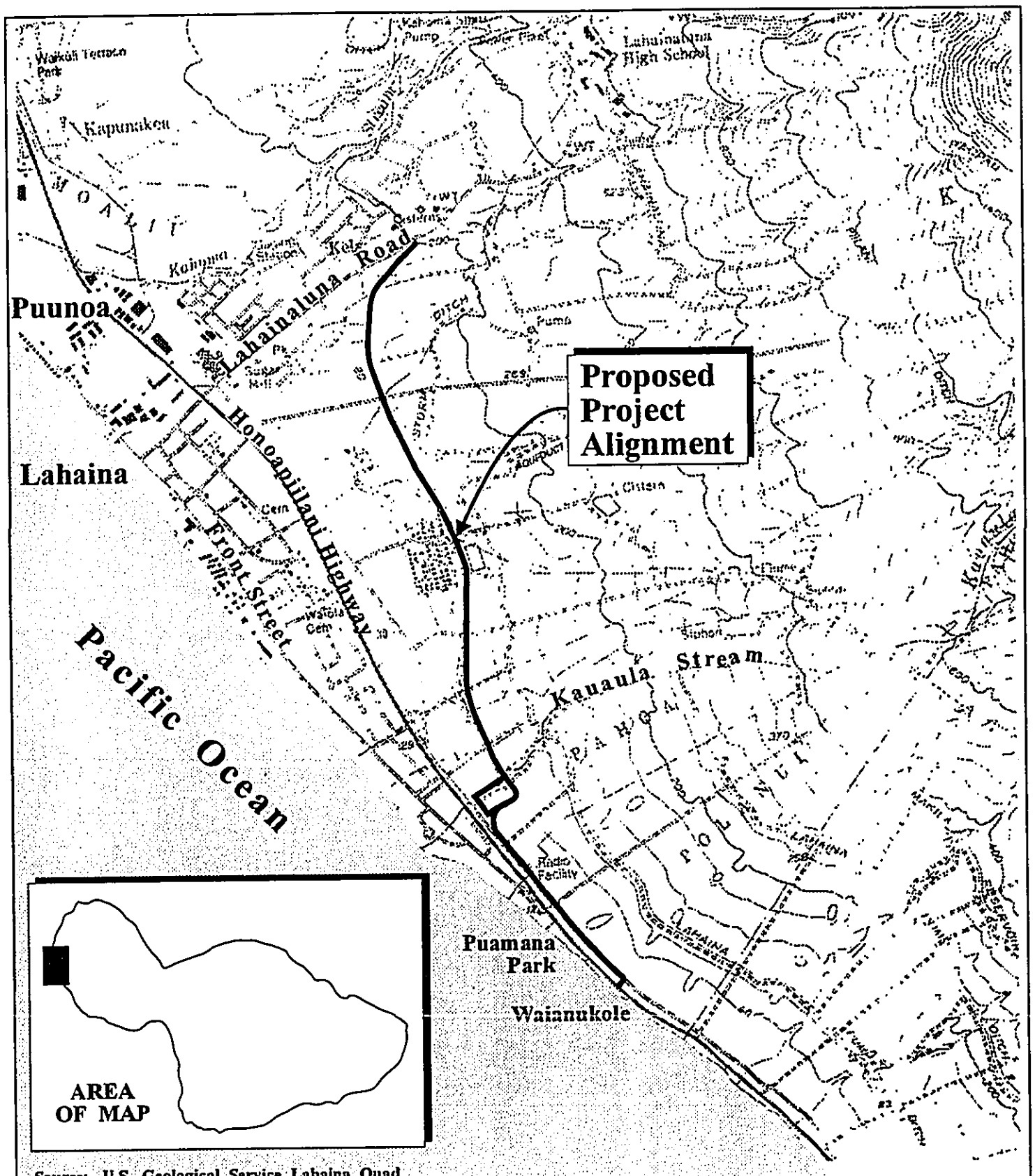
The County of Maui, Department of Public Works and Waste Management (DPWWM) and the West Maui Soil and Water Conservation District (WMSWCD), in partnership with the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) propose the implementation of a floodwater diversion system in the Lahaina Watershed.

The Lahaina Watershed is located in the West Maui region of the island of Maui, Hawaii. The watershed is 5,250 acres in area and includes three (3) subwatersheds; the 2,140-acre Lahaina subwatershed, the 2,780-acre Kauaula subwatershed, and the 330-acre subwatershed to the south of Kauaula Stream to Waianukole at the coastline. See Figure 1.

The proposed floodwater diversion system commences in the north at Lahainaluna Road and extends for a distance of 6,831 feet across the Lahaina subwatershed in a southwesterly direction to a debris basin discharging into Kauaula Stream. A grass-lined channel extension is proposed from Kauaula Stream for a distance of 3,600 feet in a southerly direction mauka of the Honoapiilani Highway right-of-way and leading to a sediment basin then to a culvert under the highway and discharging into an outlet at the shoreline. See Figure 2.

The floodwater diversion system is adjacent to and traverses lands which are in single-family residential uses, open space uses, public/quasi-public uses, lands which were formerly used for sugarcane cultivation but presently lie fallow, and the former Wainee Village site.

Approximately 31.6 acres of land will be required for installation of the



Source: U.S. Geological Service Lahaina Quad

Figure 1

Lahaina Watershed Flood Control Project

Regional Location Map

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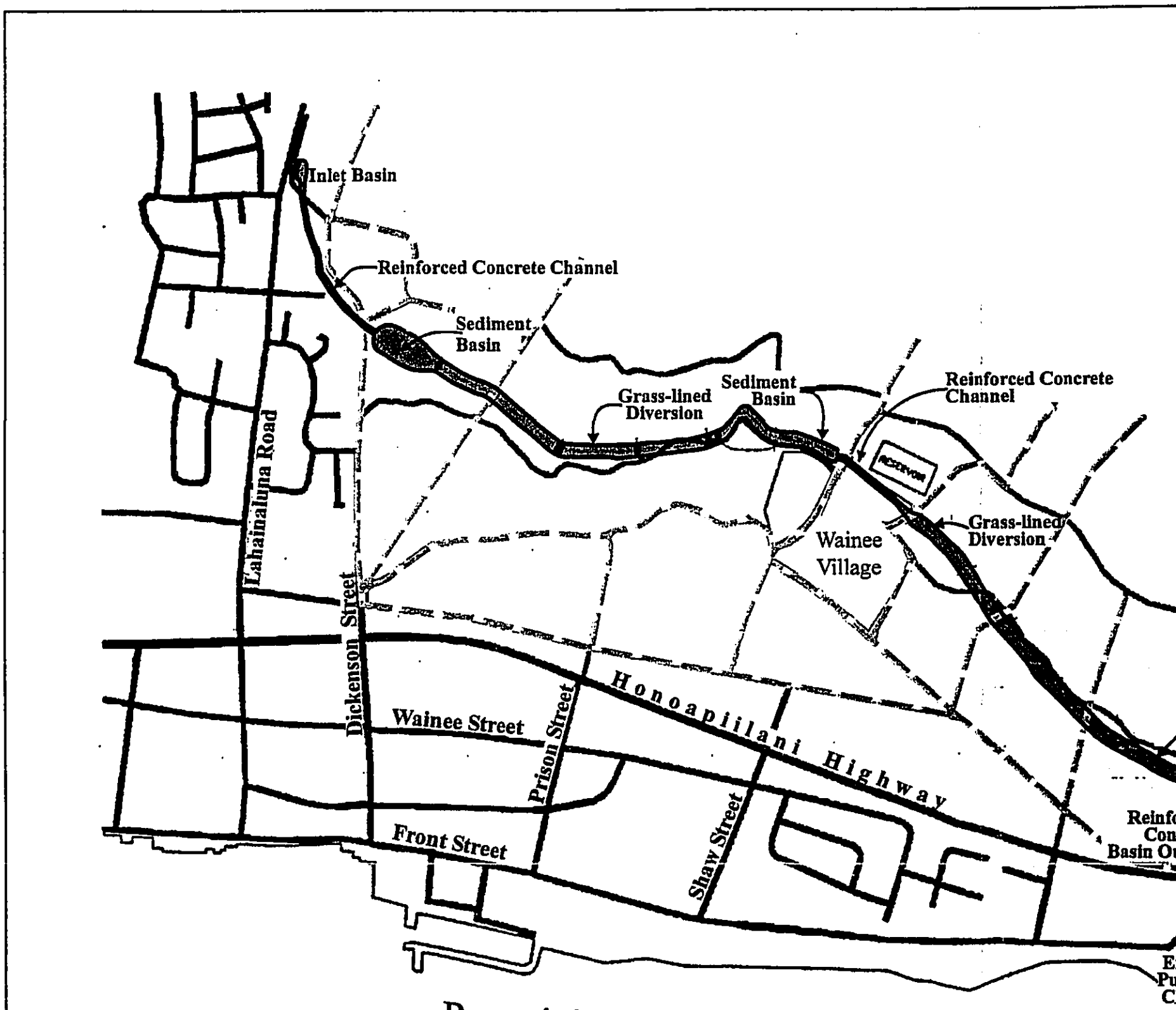

Source: USDA, Soil Conservation Service

Figure 2

Lahaina Watershed Flood Contro

Project Location Map

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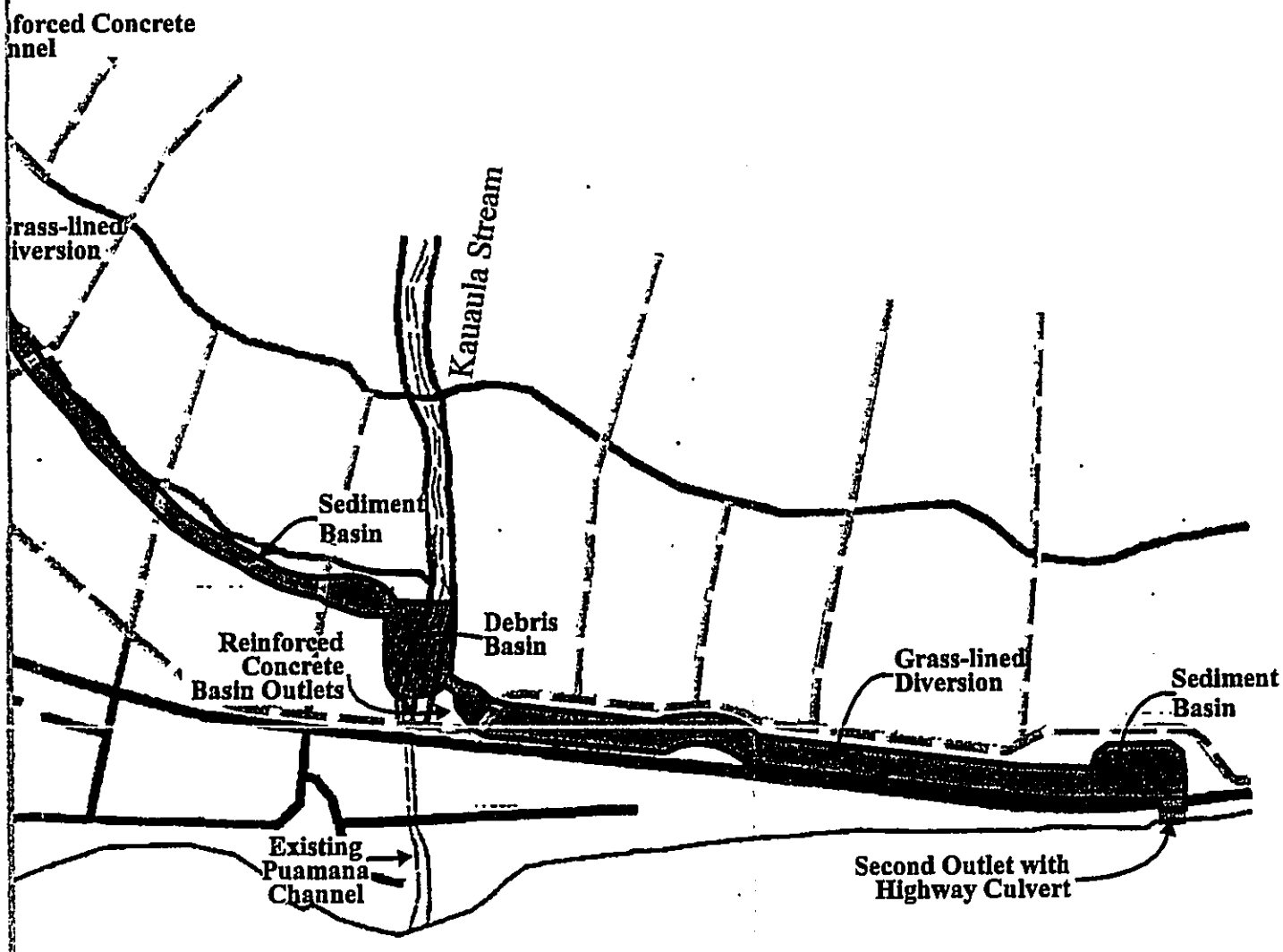
Key

Cane Haul Roads

Flood Diversion System



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proposed floodwater diversion system and related structures.

The majority of the lands required for the proposed project are owned by Amfac/JMB, Inc. (the parent company of Pioneer Mill Company), Kamehameha Schools, Makila Land Company, LLC, the State of Hawaii, and the County of Maui.

B. *PROJECT NEED*

Flooding is the main problem in the Lahaina Watershed. Floodwater and sediment damage occurs to homes, businesses, and roads in Lahaina Town and to agricultural fields, roads, irrigation systems, and ditches. Sediment-laden storm runoff turns the nearshore ocean waters a reddish-brown color resulting in income losses for ocean-front hotels and ocean-based businesses, reduced recreational opportunities, and reduced visitor appeal of the Lahaina area. Sedimentation and floodwater runoff are also recognized as a threat to the coral reef and marine ecosystems.

C. *PROPOSED ACTION*

The project's design concept involves the construction of a floodwater diversion system that starts south of Lahainaluna Road at approximately 153.0 feet above mean sea level (amsl) and extends across the watershed in a southwesterly direction and outlets into Kauaula Stream. The diversion channel is proposed to be grass-lined except for reinforced concrete channel reaches near Lahainaluna Road and adjacent to Wainee Reservoir. The proposed project also includes the construction of an inlet basin, three (3) sediment basins, a debris basin at Kauaula Stream leading to an outlet at Puamana channel and an outlet to a second 3,600 foot long grass-lined channel with a sediment basin, leading to a shoreline outlet two-thirds of a mile to the south. All bare earth areas, including all diversion surfaces, will be vegetated. A preliminary description of each

plan element starting from the upstream sector of the improvements follows.

1. ***Lahainaluna Road Inlet Basin***

The inlet basin into the reinforced concrete channel section of the proposed diversion system is proposed to be constructed alongside Lahainaluna Road. The 150-foot long by 50-foot wide by 10-foot high basin will be partially excavated and partially embanked with loose rock riprap armoring the entrance. Flows from the drainageway along the south side of Lahainaluna Road and flows from the 18-inch diameter culvert from the subdivision on the north side of the road are proposed to be routed into the basin.

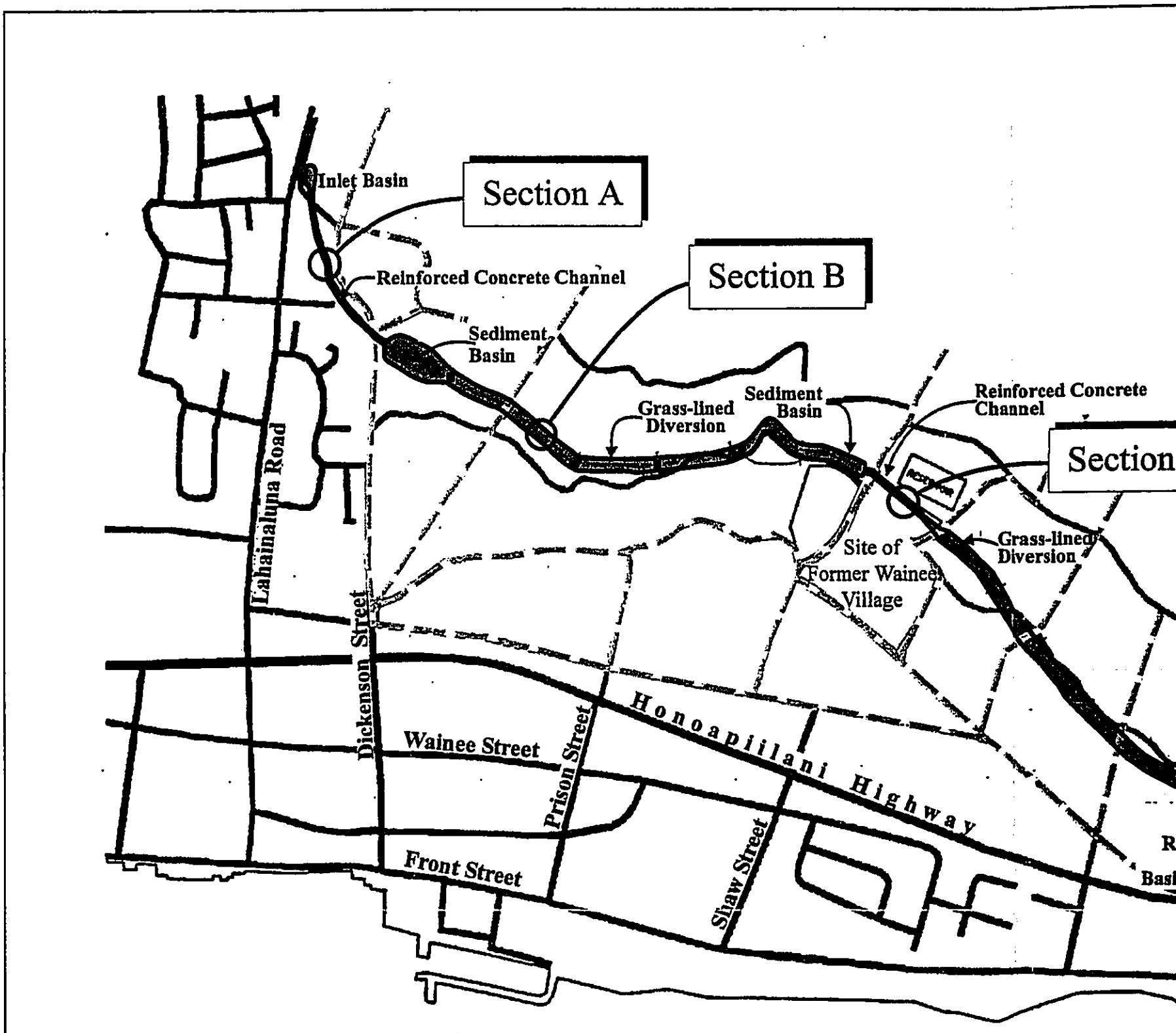
2. ***Diversion Channel***

The rectangular reinforced concrete channel leading from the Lahainaluna Road inlet basin to the grass-lined diversion channel is designed to be 10 feet wide, 5 feet high, 1,031 feet long, and set at a 4 percent grade. Refer to Figure 3 and Figure 4, Section A. Flows will enter from the inlet basin over a 31-foot long side inlet weir. An 85-foot long energy dissipating basin will be constructed at the downstream end of the channel.

Below the high velocity channel, runoff from the upper agricultural fields is designed to be intercepted by a 5,800-foot long diversion channel set at 0.20 to 0.35 percent grade. Except for 500 feet of reinforced concrete channel adjacent to Wainee Reservoir, the channel will be earthen with grass lining. Refer to Figure 3 and Figure 4, Section B. Riprap protected inlets will be provided where the diversion intercepts a drainageway.

Three (3) sediment basins are proposed to be constructed along the diversion to trap sediment. The basins will have a total capacity of 3,150 cubic yards or approximately 3,150 tons of gravel and finer sediment.

Five hundred feet of reinforced concrete channel is proposed to be installed near the base of Wainee Reservoir embankment to reduce right-of- way needs. The rectangular reinforced concrete channel will generally be 15 feet wide and 10 feet in depth. Refer to Figure 3 and Figure 4, Section C.



Source: USDA, Soil Conservation Service

Figure 3

Lahaina Watershed Flood Cont

Reference Map for Sectio

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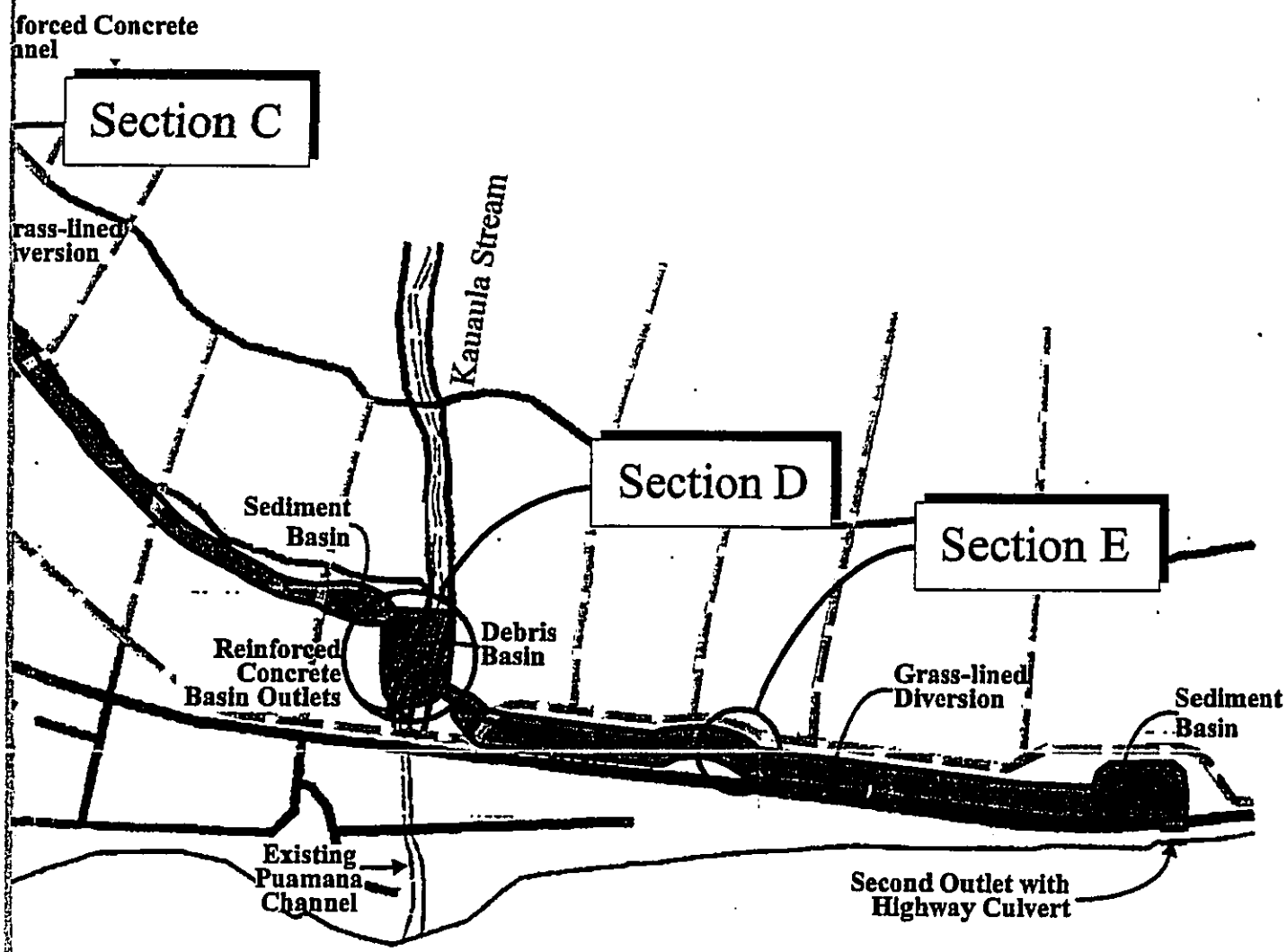

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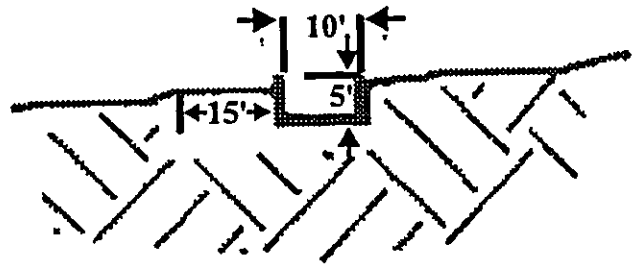
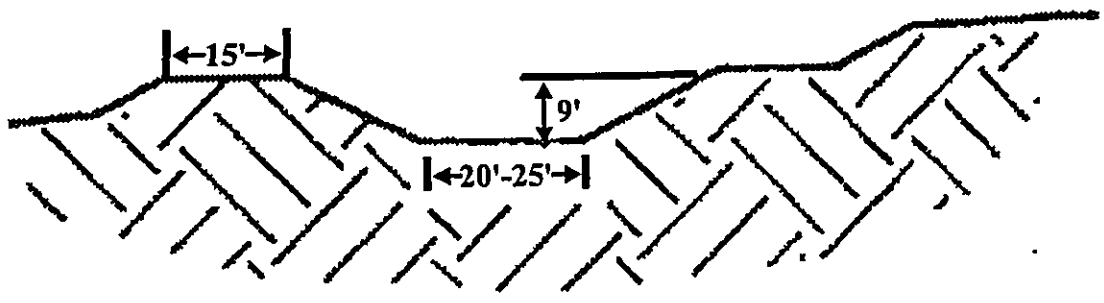
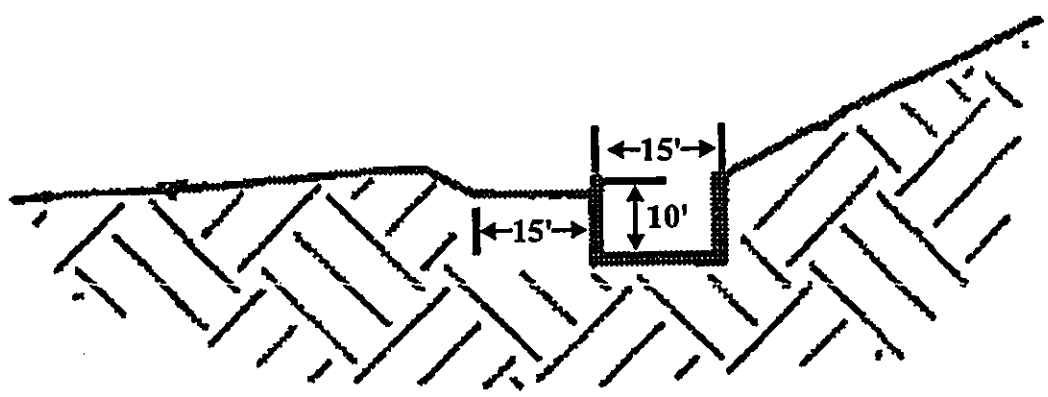


Section A: Concrete Channel Below Inlet Basin



Section B: Grass-Lined Diversion



Section C: Concrete Channel Along Wainee Reservoir

***All Views Upstream**

Source: USDA, Soil Conservation Service

Figure 4 — Lahaina Watershed Flood Control Project

Flood Diversion Channel Sections

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3. *Debris Basin at Kauaula Stream*

A debris basin is proposed to be installed at the junction of the grass-lined diversion channel and Kauaula Stream. The debris basin will trap boulders and cobbles transported by the high gradient Kauaula Stream. The basin is designed to be a flow-through structure with no flood storage or detention capability. Debris storage capacity will be approximately 7,100 cubic yards or 9,240 tons. Refer to Figure 3 and Figure 5, Section D.

The debris basin will be partially excavated with a horseshoe shaped earth embankment that rises a maximum of 10 feet from the natural ground. Rock riprap chutes will convey flows from the diversion and from Kauaula Stream into the debris basin.

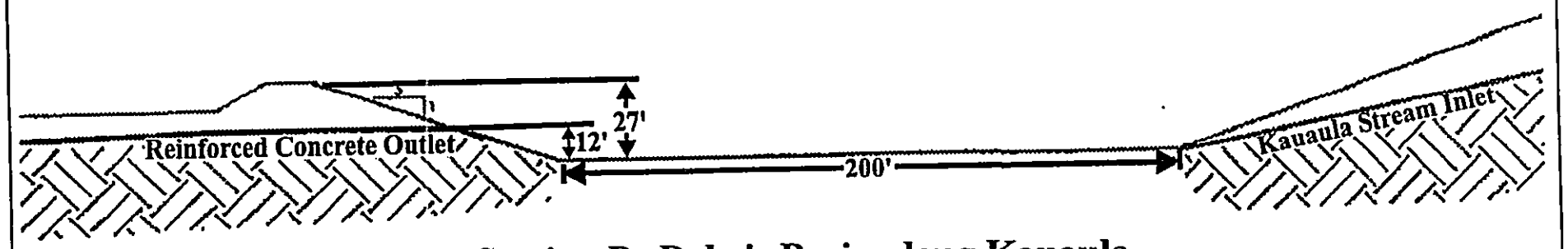
Two (2) weir outlets from the debris basin will be used. The Kauaula Stream outlet will be set at 28 feet amsl and have a weir length of 40 feet. The outlet will smoothly transition to the improved channel that extends up from the Pioneer Mill bridge just upstream of Honoapiilani Highway and to the Puamana channel. The second outlet to the south will be set at 26 feet amsl and have a weir length of 30 feet. A reinforced concrete chute with a stilling basin will convey flow into the grass-lined outlet channel. Initial flows from the basin will be routed toward the second outlet. At the 100-year peak discharge, the flows will be divided evenly between the two (2) outlets.

4. *Kauaula Stream*

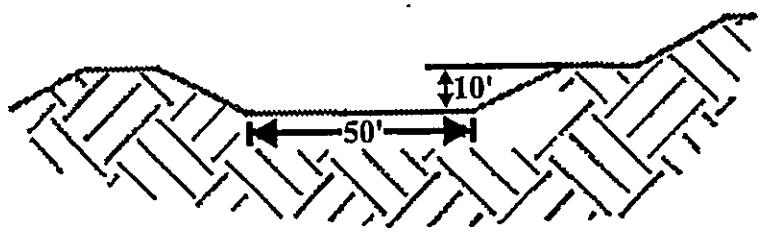
The existing channel from the Pioneer Mill bridge seaward will not be improved by the project. The debris basin will virtually eliminate the coarse sediment that is presently deposited in the Puamana area of the existing channel.

5. *Second Outlet*

The floodwater diversion system from Kauaula Stream to the second outlet consists of 3,600 feet of grass-lined waterway, a sediment basin, a culvert under Honoapiilani Highway, and a discharge outlet at the shoreline. The channel cross section is designed to be trapezoidal with a 50-foot bottom width and an average depth of 10 feet. Refer to Figure 3 and Figure 5, Section E. The channel will be set at an approximate grade of 0.3 percent and flow into a rock riprap sediment basin 110 feet long and 58 feet wide. The culvert under Honoapiilani Highway is proposed to



Section D: Debris Basin along Kauaula Stream Viewed from Southeast



Section E: Grass-Lined Diversion South of Kauaula Stream

Source: USDA, Soil Conservation Service

Figure 5

Lahaina Watershed Flood Control Project

Flood Diversion Channel Sections

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be a 4-bay box culvert approximately 48 feet wide and 11 feet high. The runoff will then flow onto a concrete apron and a rock riprap spillway mauka of the shoreline.

D. ***PROJECT IMPLEMENTATION***

The estimated cost of the proposed project is approximately $10.0 to $12.0 million. The implementation of the project is anticipated to occur upon receipt of necessary approvals and approval of Federal and County funds. It is anticipated that project construction will take 12 months to complete.

Inasmuch as the proposed action will utilize Federal and County monies, an Environmental Impact Statement (EIS) will be prepared in accordance with Chapter 343, Hawaii Revised Statutes and the National Environmental Policy Act.

Chapter II

Description of the Existing Environment

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL SETTING

1. Surrounding Uses

The proposed floodwater diversion system traverses lands formerly cultivated in sugarcane. Lands surrounding the project include residential, agricultural, and public/quasi-public uses. Starting in the north at the inlet basin are existing single-family residences along Lahainaluna Road. To the east lie large acreages of former agricultural lands which are now fallow except for a 50-acre section in mixed crop agricultural use. Continuing south to Kauaula Stream and to the west lie former sugarcane fields which are now fallow and the former Wainee Village site, a plantation camp whose last remaining structures were demolished in late 1999. Continuing south along the diversion system to the second ocean outfall and to the west lie the Honoapiilani Highway, single- and multi-family residences, Puamana Park, and the Pacific Ocean beyond. The Lahaina Aquatic Center and the Lahaina Recreation Center are located along Honoapiilani Highway, west of the proposed project alignment.

The proposed site of the West Side Resource Center is located west or makai of the flood diversion system alignment (in the vicinity of the former Wainee Village site). This 5.0-acre site will be developed as a homeless resource center and provide long-term affordable rental housing and emergency/transitional housing.

2. Climate

Like most areas of Hawaii, West Maui's climate is relatively uniform year-round. The region's tropical latitude, its position relative to storm tracts and the Pacific anticyclone, and the surrounding ocean

combine to produce this stable climate. Variations in climate among different regions, then, is largely left to local terrain.

In Lahaina, August is historically the warmest month with an average high temperature of approximately 88 degrees Fahrenheit and average low temperature of 70 degrees Fahrenheit. January is normally the coolest month of the year with an average high temperature of 80 degrees Fahrenheit and an average low temperature of approximately 62 degrees Fahrenheit.

The Lahaina Watershed has a very steep rainfall gradient due to the proximity of the mountains to the ocean. In general, average annual rainfall varies from 15 inches at the coast to 300 inches in the mountains, only four (4) miles inland.

Rainfall at Lahaina is highly seasonal, with most precipitation occurring from November to April when winter storms hit the area. Precipitation data for 2001 shows that on average, January was the wettest month, with 3.49 inches of rainfall, while May, August, September, and October were the driest with no rainfall at all. Total precipitation at Lahaina for the year was 6.11 inches. This was a (-)13.89 inches departure from normal (Maui County Data Book, 2001).

The winds in the region are also seasonal. The northeasterly tradewind occurs 90 percent of the time during the summer, and just 50 percent of the time in the winter with average wind speeds of approximately 10 miles per hour. However, wind patterns vary on a daily basis, with tradewinds generally being stronger in the afternoon. During the day, winds blow onshore toward the warmer

land mass. In the evening, the reverse occurs, as breezes blow toward the relatively warm ocean.

3. *Topography and Soils*

The lands surrounding the proposed floodwater diversion system is characterized by gently sloping topography and generally slopes in a westerly direction towards the ocean. Elevations within the project area range from approximately 153 feet above mean sea level (amsl) in the north to sea level in the south at the second channel outlet.

At a regional scale, the Lahaina subwatershed rises from the Pacific Ocean to 2,561 feet amsl and the Kauaula subwatershed rises from the ocean to 5,220 feet amsl. The coastal areas of both subwatersheds are relatively flat and have been developed for residential, commercial and public/quasi-public uses. The area above the developed flatland to about the 1,400 foot elevation is gently sloping with an average slope of 10 percent and was formerly used for growing sugarcane. The remaining upper area of the Lahaina subwatershed is steep and was formerly used for sugarcane or pasture. The upper portion of the Kauaula subwatershed is mountainous with deeply incised canyons and is part of the West Maui Forest Reserve.

Underlying the proposed floodwater diversion system project site are soils of the Pulehu-Ewa-Jaucas association with deep, nearly level to moderate sloping, well-drained and excessively drained soils that have a moderately fine textured to coarse-textured subsoils or underlying material. See Figure 6. The specific soils types are as follows: Ewa (EaA) silty clay loam with 0 to 3 percent

LEGEND

① Pulehu-Ewa-Jaucas association

② Waiakoa-Keahua-Molokai association

③ Honolua-Olelo association

④ Rock land-Rough mountainous land association

⑤ Puu Pa-Kula-Pane association

⑥ Hydrandepts-Tropaquods association

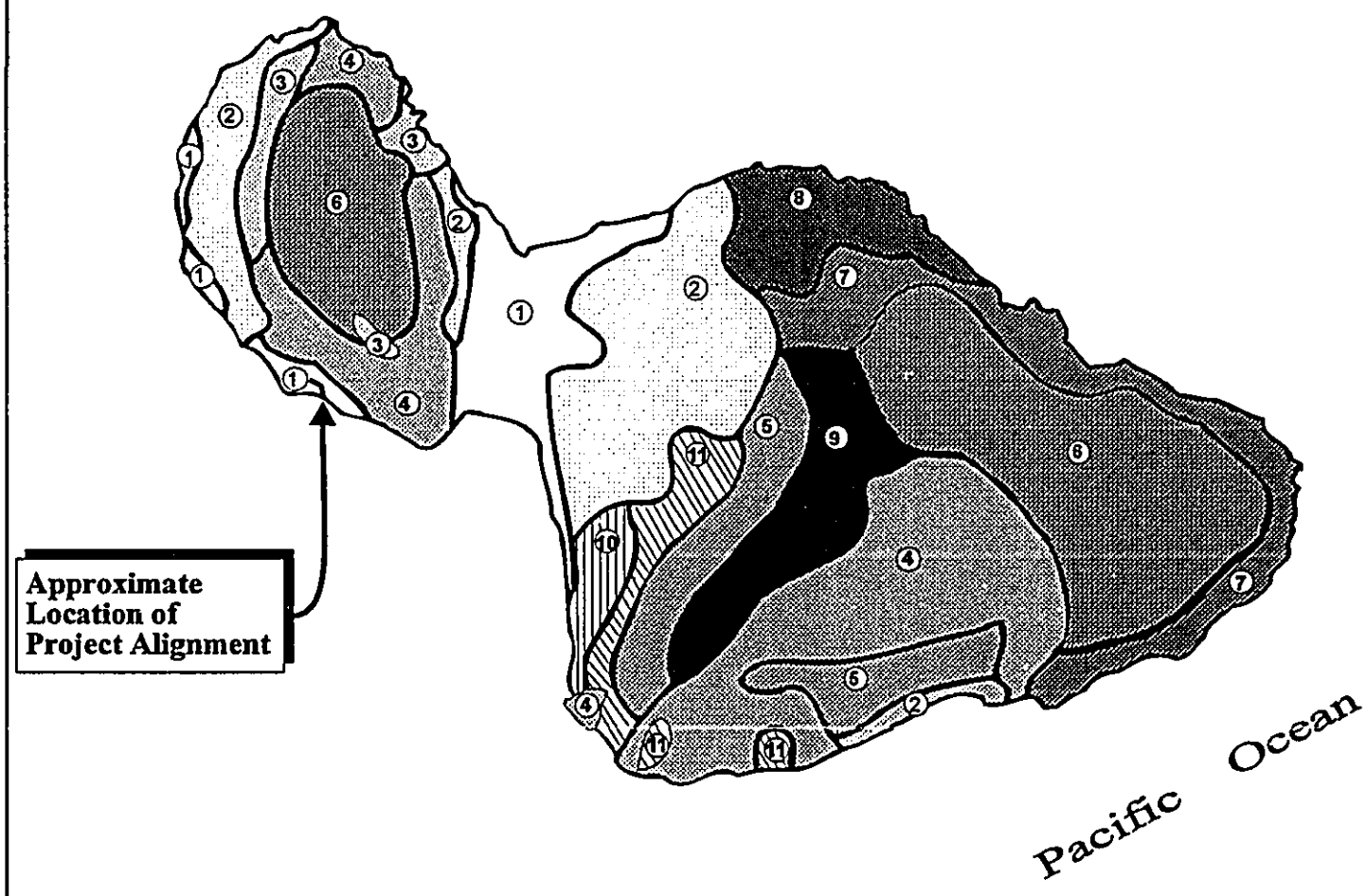
⑦ Hana-Makaalae-Kailua association

⑧ Pauwela-Haiku association

⑨ Laumaia-Kaipoipoi-Olinda association

⑩ Keawakapu-Makena association

⑪ Kamaole-Oanapuka association



Source: USDA, Soil Conservation Service

Figure 6

Lahaina Watershed Flood Control Project

Soil Association Map

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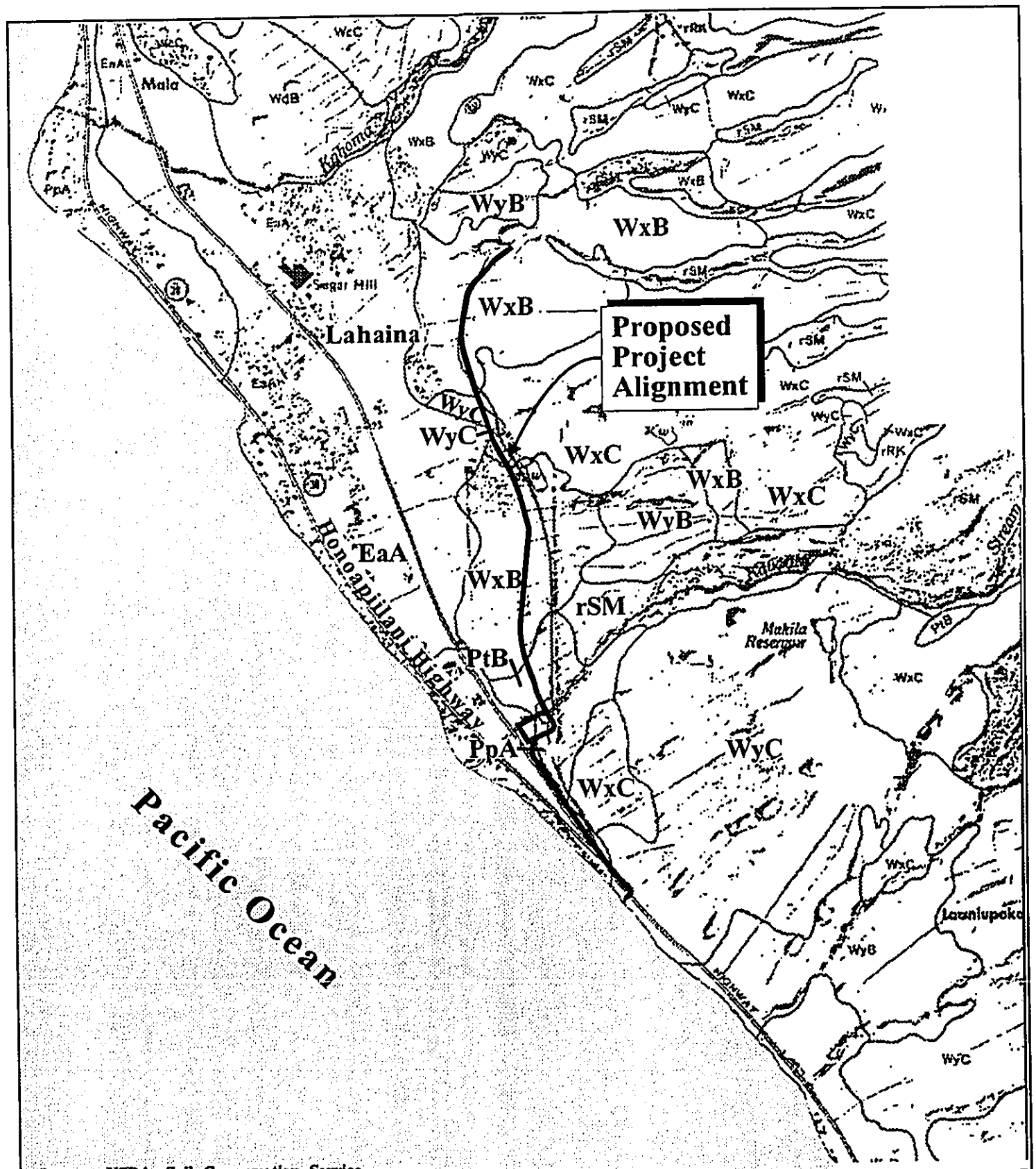
slopes; Wainee (WxB) very stony silty clay with 3 to 7 percent slopes; Wainee (WxC) stony silty clay with 7 to 15 percent slopes; Wainee (WyC) extremely stony silty clay with 7 to 15 percent slopes; Pulehu (PpA) silt loam with 0 to 3 percent slopes; and Pulehu (PtB) cobbly clay loam with 3 to 7 percent slopes. Runoff on the Ewa soils is very slow and erosion hazard is slight. Runoff on the Wainee soils is slow to medium and erosion hazard is slight. Runoff on the Pulehu soils is slow and erosion hazard is no more than slight. See Figure 7.

In 1977, the State Department of Agriculture established a classification system for identifying Agricultural Lands of Importance to the State of Hawaii (ALISH), primarily, but not exclusively, on the basis of soil characteristics. The three (3) classes of ALISH lands are: "prime", "unique", and "other". As reflected by the ALISH map for the Lahaina area, the proposed floodwater diversion system project site traverses lands which have been classified in the "Other" important agricultural land category and lands which have been classified in the "Prime" agricultural land category. Approximately 18.0 acres of "Prime" and 10.0 acres of "Other" important agricultural land will be required for the proposed project. The remaining 3.1 acres of land required for the proposed project are within lands that have not been classified. See Figure 8.

4. ***Flood and Tsunami Hazard***

As indicated by the Flood Insurance Rate Map (FIRM) for the Lahaina area, the proposed floodwater diversion system traverses land primarily within Zone C, an area of minimal flooding (FIRM Community Panel No. 150003/0163B, June 1, 1981). However, the



Source: USDA, Soil Conservation Service

Figure 7

Lahaina Watershed Flood Control Project

Soil Classification Map

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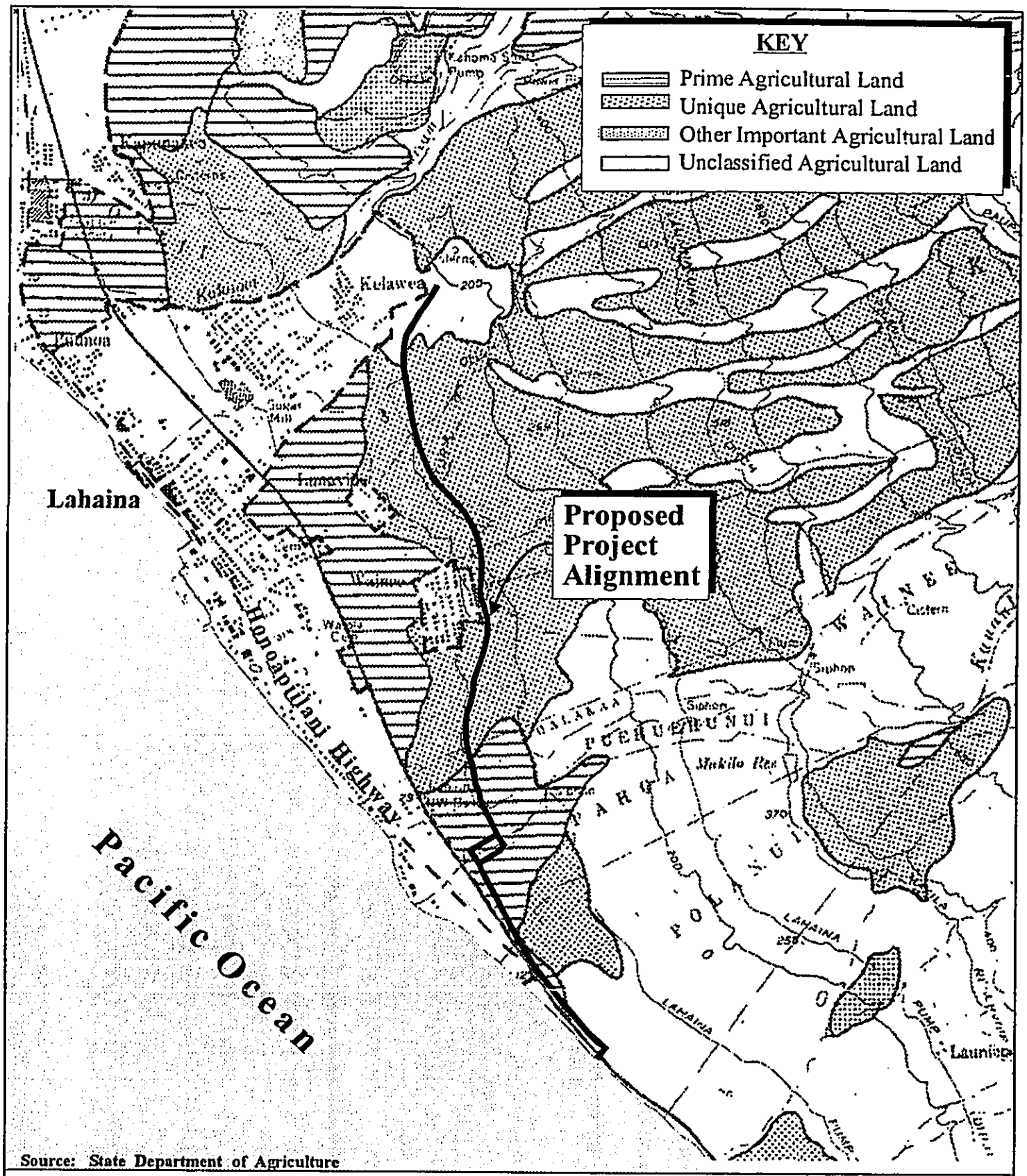

Figure 8

Lahaina Watershed Flood Control Project

Agricultural Lands of Importance to the State of Hawaii

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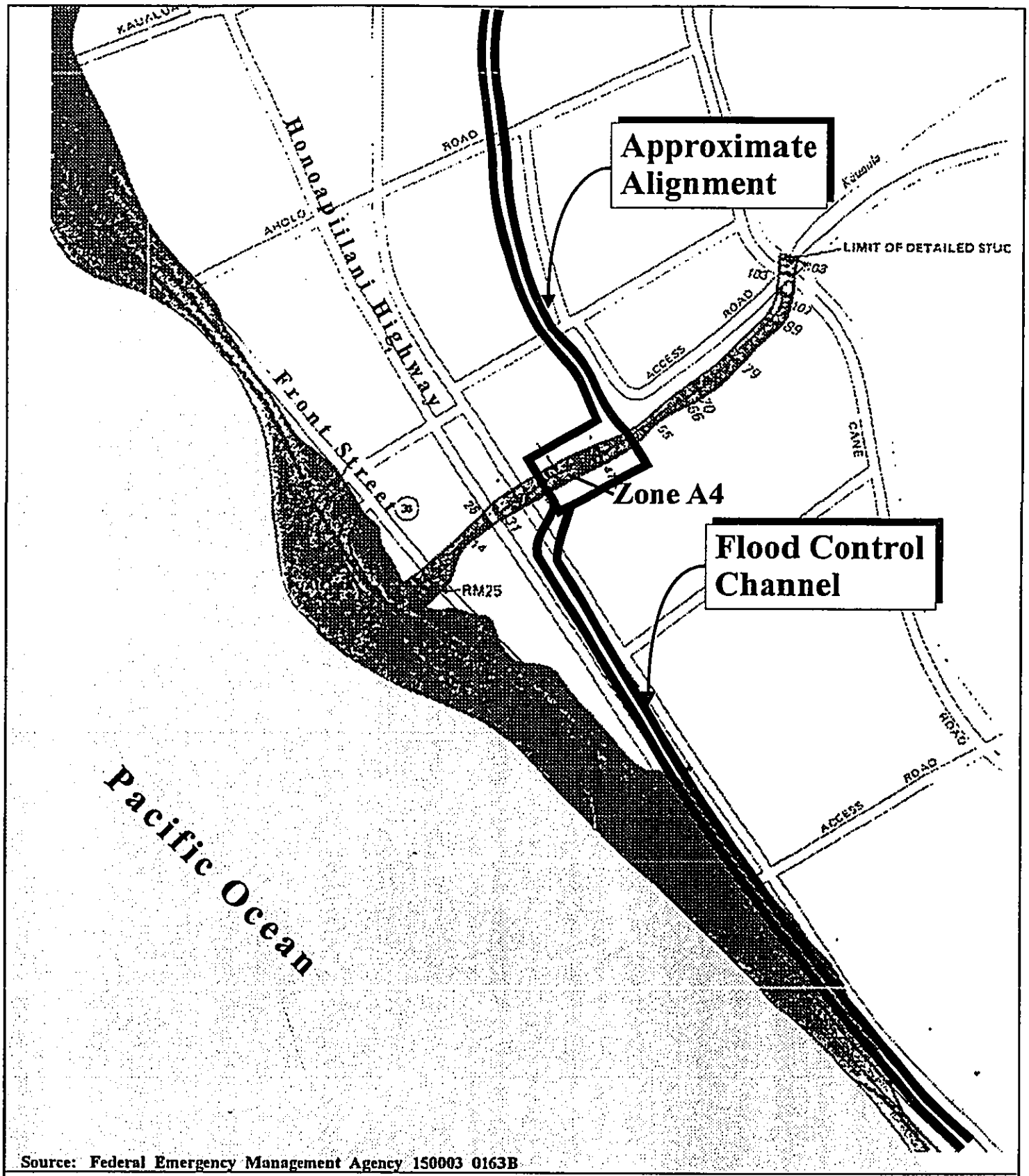
debris channel and the weir outlets from the debris channel and a portion of the second channel are within Zone A4, areas of 100 year floods with base flood elevations of 9 feet. See Figure 9.

5. ***Flora, Fauna and Wetlands Habitat***

A large portion of the lands surrounding and within the proposed floodwater diversion system was utilized for sugarcane cultivation until Pioneer Mill Company, Ltd. terminated its sugar operations in September 1999. A portion of the proposed project also borders the site of the former Wainee Village, a plantation camp whose last remaining structures were demolished in October 1999. Since then, introduced species of grasses, weeds, shrubs, and trees have occupied the lands surrounding and within the proposed floodwater diversion system. A narrow strip of vegetation, including haole koa brush and kiawe trees, are found on both banks of Kauaula Stream.

The region's avifauna include a host of introduced species, including the Japanese White-eye, Zebra Dove, Cardinal, Spotted Dove, and Common Myna. The Golden Plover (*Kolea*), Black Crowned Night Heron (*'auku'u*), and the Hawaiian Owl (*pueo*) are also found within the vicinity of the proposed project site. These latter species are considered endemic but not endangered. Other mammals common to the project area include rats, mice, and mongoose.

The only known plant or animal species listed or proposed by the Federal government as endangered or threatened that occur in or near the proposed project area are the Hawaiian green sea turtle (*Chelonia mydas*) and the Humpback whale (*Megaptera*



Source: Federal Emergency Management Agency 150003 0163B

Figure 9 Lahaina Watershed Flood Control Project
Flood Insurance Rate Map

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According to local residents, Hawaiian green sea turtles are frequently sighted along the Lahaina coastline. This was confirmed by reconnaissance of the marine macrobiota and water quality conditions by Brock and Grigg, in 1989 and 1991, respectively. An important resource in the intertidal habitat fronting the project site are the locally developed stands of alga *Pterocladia capillacea* which is an important forage food for the threatened turtle.

Endangered Humpback whales are seasonally present in nearshore waters from approximately December through May. Calf rearing and reproductive activities often occur in proximity to the reefs fronting the watershed.

Critical habitat for any listed, proposed, or candidate species has not been designated or proposed within or near the project area.

The U.S. Department of the Interior's National Wetlands Inventory map does not reveal any wetlands located within or in close proximity to the proposed floodwater diversion system.

6. ***Nearshore Reef Ecosystems***

A well developed reef system extends all along the coastline bordering Lahaina Town. The reef extends from Kauaula Stream on the south to Mala Wharf on the north. This biotope of diverse high coral cover is situated offshore, located in a narrow band adjacent to shore fronting most of the project area. The only break in the reef is the access channel to Lahaina Harbor. The reef is typical of leeward coastal exposures in the Hawaiian Islands.

The dominant reef building coral at depths to about 21 feet is *Porities lobata*. At depths of 33 to 40 feet, *Porities compressa* is the dominant coral. Beyond the 40 feet depth, the reef is replaced by a sand or sand-rubble substratum which extends offshore to greater depths. The top of the reef is relatively flat at shallow depths. At the reef edge a drop off from 20 to 40 feet is found. The coral cover and diversity of coral, other invertebrates, and fish are greatest along the shelf drop-off. Shoreward of the biotope of diverse coral near the Lahaina Boat Harbor is the intertidal region where the surface is dominated by basalt boulders.

During the Draft Environmental Impact Statement (EIS) phase, the shoreline and nearshore marine flora and fauna will be investigated in the vicinity of the proposed drainage outlets to determine existing baseline conditions and aid in assessing stormwater discharge impacts.

7. ***Stream Fish Habitat***

The proposed project will not affect fish rearing habitat of the lower reaches of Kauaula Stream since this section of the stream is a cement rock masonry channel with a concrete channel bottom which is dry throughout the year except during periods of heavy rainfall. The cobble/boulder bed of the unimproved upper reach is also usually dry. Except for the tidal backwater in the improved outlet channel, no fish habitat exists in the project-affected reaches of Kauaula Stream.

8. ***Mineral Resources***

There are no identified mineral resources within the proposed project channel.

9. ***Archaeological Resources***

As previously indicated, lands surrounding and within the proposed project channel were formerly utilized for growing sugarcane, while the remaining portion of the proposed project channel is situated within the limits of the former Wainee Village.

During the DEIS preparation phase, an Archaeological Inventory Survey will be undertaken to identify archaeological resources within the project area.

10. ***Air Quality***

The Lahaina region is not exposed to adverse air quality conditions. There are no point sources of airborne emissions in the immediate vicinity and the air quality in the vicinity of the proposed project is considered good. Motor vehicles are the primary source of indirect emissions in the region.

11. ***Water Quality***

Sediment discharge from floodwater runoff and its effect on marine water quality and the coastal environment near the area where the diverted floodwaters would enter the ocean will be investigated and the findings will be included in the EIS document. Historical information and new field investigation data will be used to evaluate possible impacts of the proposed floodwater discharge on coastal water quality and marine flora and fauna. Impacts to coastal water quality will be evaluated using numerical models for the evaluation of surface discharge into receiving waters. These models will be used to predict the dilution and transport of floodwater (freshwater with high suspended solids) as it enters the coastal receiving water, which in turn will be used to assess potential impacts of the

discharge on water quality and marine life.

12. Noise Characteristics

There are no significant fixed noise generators in the vicinity of the proposed project channel. Existing background noise in the project area is attributable to vehicles travelling along Honoapiilani Highway, as well as vehicles on Lahainaluna Road proceeding to or from Princess Nahienaena Elementary School, Lahaina Intermediate School, and Lahainaluna High School.

13. Scenic Resources

Elevations of the proposed project channel range from about 153 feet amsl at its northern intake channel to sea level at the second discharge outlet to the south. The West Maui Mountains are visible to the east of the proposed project channel, while the town of Lahaina, the Pacific Ocean, and the offshore island of Lanai, are visible to the west of the project area.

B. COMMUNITY SETTING

1. Land Use and Community Character

The vast majority of lands in West Maui are either State designated "Conservation" or "Agricultural". Generally, "Conservation" lands occupy the higher elevations, while the "Agricultural" district spans the middle ground. Major exceptions to this trend are the Honolua Stream and Pohakupule Gulch areas where the "Conservation" district extends down to sea level.

"Urban" designated lands, then, are left to occupy the lower elevations along the coast. Kapalua and Kaanapali contain Community Plan designations reflective of their resort nature. The

communities of Kahana and Napili contain a mixture of resort, residential and business uses. Lahaina, meanwhile, encompasses a diverse mix of land uses, including residential, business, light industrial, recreational and agricultural uses.

The town of Lahaina is the commercial center for West Maui. The town contains several shopping centers and retail business areas, and serves as a hub for the region's residential housing.

West Maui's attraction can be attributed to its year-round dry and warm climate, complemented by many white-sand beaches and scenic landscape. Visitor accommodations are located in Lahaina and the resort communities of Kaanapali, Kahana, Napili, and Kapalua. The State of Hawaii's Kapalua-West Maui Airport at Mahinahina links the region to Oahu and other neighbor islands.

Diversified agriculture and pineapple fields occupy much of the land in the West Maui region. Pioneer Mill Company cultivates their agricultural lands in the Kaanapali area with coffee and seed corn. Maui Land & Pineapple Company's fields span along the slopes of the West Maui Mountains north of Lahaina. Within the Lahaina Watershed approximately 1,262 acres of agricultural land were formerly used for the production of sugarcane. However, the majority of these lands are fallow and only approximately 50 acres are used for diversified agriculture, such as sweet corn and bananas.

2. ***Population***

In 2000, the population of the island of Maui was 120,038, with 17,748 persons (15 percent) of the island's population residing in

West Maui. Since 1970, West Maui has seen an increase in population, with the population increasing from about 5,500 persons in 1970, to approximately 10,300 persons in 1980, and to about 14,600 persons in 1990.

West Maui's annual average population growth over the last three (3) decades has kept pace with that of Maui County. The year 2000 County population was 128,241, compared to a 1990 population of 100,374.

3. ***Demography***

The overall West Maui population in 2000 differed from the County in terms of age and ethnic distribution as reflected in Table 1. West Maui had proportionally a larger eligible labor force.

Table 1

AGE AND ETHNICITY		
Population	***Maui County***	***West Maui***
	128,094	17,748
Age		
Under 5	7 percent	7 percent
5 to 19	21 percent	17 percent
20 to 44	37 percent	42 percent
45 to 64	24 percent	24 percent
65 and older	11 percent	10 percent
Median age	36.8 years	39.3 years
Ethnicity		
Caucasian	34 percent	55 percent
Japanese	10 percent	5 percent
Hawaiian	9 percent	6 percent
Filipino	17 percent	13 percent
All Others	30 percent	21 percent
Source: U.S. Census Bureau, 2000.		

As noted in the preceding table, 66 percent of West Maui's population were in the labor force ages between 20 to 64 years of age, while County-wide 61 percent of the population were in this age category. West Maui had a slightly higher median age of 39.3 years, when compared to the County-wide median of 36.8 years.

4. ***Household and Family Characteristics***

In 2000, West Maui contained 5,951 households, accounting for 14 percent of all of Maui County's 43,507 households. The average

household sizes in Maui County and West Maui were 2.91 and 2.79 persons, respectively.

In terms of the proportion of family households, 69 percent of Maui County's households in the year 2000 were family households. In West Maui, 67 percent of the total households comprised families. Based on 1990 household income information, West Maui's poverty rate of 3 percent for that year was one-half the County-wide rate.

5. ***Housing***

West Maui's 2000 housing stock of 10,314 units had a vacancy rate of 52 percent, which was higher than the County-wide rate of 23 percent. West Maui's housing vacancy rate stems from units reserved for visitor use and secondary homes of absentee owners.

County-wide, owners lived in 58 percent of the occupied homes. Owner occupancy tended to be slightly higher in West Maui, with 60 percent of the units being owner-occupied.

Housing values in West Maui were noticeably higher than those of the County-wide housing supply. Whereas the median home valuation in Maui County was $202,100.00, West Maui's median was $240,800.00. The region's median monthly rent of $776.00 was more than $100.00 above the County median of $658.00.

6. ***Labor Force***

As of December 2001, the unemployment rate for Maui County and the island of Maui stood at 4.2 percent and 3.8 percent, respectively (State Department of Labor and Industrial Relations, January 2002).

In terms of the profile of employed persons, West Maui generally follows the County-wide trends for the labor force characteristics shown in Table 2.

Table 2

Labor Force Characteristics		
Occupational Category	***Maui County***	***West Maui***
Managerial and Professional	21 percent	19 percent
Technical and Sales	15 percent	16 percent
Service	33 percent	43 percent
Farming and Fishing	6 percent	5 percent
Precision, Craft and Operators	16 percent	11 percent
Transportation	5 percent	4 percent
Handlers, Cleaners and Laborers	4 percent	2 percent
Source: U.S. Census Bureau, 1991 and 1992.		

In terms of the profile of employed persons, more West Maui workers were employed in the service industry (43 percent) when compared to the County-wide profile (33 percent). Because of West Maui's emphasis on service jobs, all other job sectors exhibited slightly lower participation rates.

7. ***Economy***

The economy of Maui is heavily dependent upon the visitor industry. The dependency on the visitor industry is especially evident in West Maui, which is one of the State's major resort destination areas. As such, a community of tourism service sector workers has developed in the area. This group includes former sugar company workers and their families, younger mobile workers,

and immigrants from Asia and other Pacific Islands.

Agriculture, another vital component of the West Maui economy, is handled by Pioneer Mill Company, Ltd. and Maui Land & Pineapple Company, Inc. Until the closure of sugarcane cultivation in September 1999, Pioneer Mill cultivated most of its approximately 6,700 acres of fee simple and leased lands with sugarcane. Pioneer Mill is currently in the process of diversifying its agricultural operations by utilizing portions of its lands for sweet corn, seed corn, and alfalfa cultivation.

Maui Land & Pineapple's fields remain an important component of the region's agricultural base.

8. ***Police and Fire Protection***

The proposed project is within the Lahaina Police Station service area, which services all of the Lahaina district. The Lahaina Station is located in the Lahaina Civic Center complex at Wahikuli, and was built in the early 1970's. The Lahaina Patrol includes 54 full-time personnel, consisting of one (1) captain, one (1) lieutenant, seven (7) sergeants, and 39 police officers. The remaining six (6) personnel consist of public safety aides and administrative support staff.

Fire prevention, suppression and protection services for the Lahaina District is provided by the Lahaina Fire Station, also located in the Lahaina Civic Center, and the Napili Fire Station, located about 9 miles to the north of the project site. The Lahaina Fire Station includes an engine and a ladder company, and is staffed by 30 full-time personnel. The Napili Fire Station consists

of an engine company including 15 full-time firefighting personnel.

9. *Medical Facilities*

The only major medical facility on the Island is Maui Memorial Medical Center, located midway between Wailuku and Kahului. The 196-bed facility provides general, acute, and emergency care services.

Private medical offices, however, are found in West Maui. For example, regular hours are offered by the Maui Medical Group, Lahaina Physicians, West Maui Healthcare Center, and Kaiser Permanente Lahaina Clinic.

10. *Recreational Facilities*

West Maui is served by numerous recreational facilities offering diverse opportunities for the region's residents. These facilities include several County parks and beach parks in West Maui. Approximately one-third of the County parks are situated along the shoreline and are excellent swimming, diving, and snorkeling areas. In addition, Kaanapali and Kapalua Resorts operate world-class golf courses which are available for public use.

Recreational facilities in the vicinity of the project site include the Lahaina Aquatic Center, West Maui Youth Center, and the Lahaina Recreation Center. The Lahaina Aquatic Center contains an Olympic-size swimming pool, a children's wading pool, a paved parking lot, and office and storage space, as well as facilities containing showers, restrooms, and changing rooms. The West Maui Youth Center provides a building for youth activities, as well as paved parking and an outdoor playground and basketball court.

The Lahaina Recreation Center includes baseball fields and playfields for soccer and football, as well as restroom and paved parking facilities.

In addition, just west of the proposed project channel in the vicinity of the former Wainee Village, Amfac/JMB Hawaii has completed site work for a 13-acre park which, when dedicated to the County of Maui, will expand the existing Lahaina Recreation Center. The park, which is nearing completion, will include playfields, landscape plantings, restroom facilities, and paved parking areas. Upon completion, the park will be dedicated to the County of Maui.

The clear ocean waters and well-developed reef system along the Lahaina coastline offer many recreational opportunities for residents and visitors. Many tourism-based businesses also rely on the ocean and reef system for their operation.

Fishing by shorecasting and netting is practiced in the nearshore ocean waters near the outlet of Kauaula Stream and Makila Point. Edible seaweed collecting, octopus fishing, and spearfishing occur on the adjacent reef flat. During periods of wave activity, the area is a good location for surfing and several instructors use it on a daily basis to teach the sport.

An inventory of Maui's coral reefs, published by the Corps of Engineers, documents excellent visibility in deeper waters off Makila Point, with extensive coral cover. This water quality characteristic is important to the commercial diving charter and glass-bottom boats operating out of Lahaina Harbor.

Shorecasters, net-throwers, and skindivers fish in the nearshore ocean waters just southeast of Lahaina Harbor.

11. *Educational Facilities*

The State of Hawaii, Department of Education operates four (4) public schools in West Maui: Lahainaluna High School; Lahaina Intermediate School; King Kamehameha III Elementary School; and Princess Nahienaena Elementary School. All of the public schools are located within the Lahaina Town area.

The region is also served by privately operated pre-elementary and elementary schools.

C. *INFRASTRUCTURE*

1. *Roadways*

Honoapiilani Highway (State Highway 30), the principal arterial roadway in West Maui, provides north-south regional mobility and access to communities in the region. For most of its length, Honoapiilani Highway operates as a two-lane arterial roadway with median left-turn lanes provided at major intersections. From Lahaina Town (just south of Dickenson Street) to the Honokowai Stream Bridge, Honoapiilani Highway functions as a four-lane arterial roadway. In the vicinity of the proposed project channel, Honoapiilani Highway has a posted speed limit of 35 mph. Lahainaluna Road is a two-lane County roadway providing east-west access from Front Street in the west to Lahainaluna High School in the east at approximately 600 feet amsl. The proposed project intake basin is located just south of Lahainaluna Road at approximately 153 feet amsl. The posted speed limit on Lahainaluna Road in the vicinity of the project is 20 miles per hour

(mph).

2. ***Lahaina Bypass***

The proposed Lahaina Bypass Highway from Launiupoko in the south to Honokowai in the north is presently undergoing a final supplementary environmental impact statement review. This project is anticipated to be developed in phases with the Phase I improvements to begin in late 2004. The roadway section from Lahainaluna Road south to approximately 1,000 feet north of Launiupoko Point would initially consist of two (2) travel lanes and a separate northbound truck-climbing lane. This roadway section is located approximately 500 feet mauka (east) from the proposed floodwater diversion channel from Lahainaluna to Kauaula Stream and approximately 1,500 feet (mauka) of the proposed floodwater diversion channel south of Kauaula Stream. Where the proposed highway traverses drainageways, within the project subwatersheds, the existing drainage pattern will be maintained by construction of culvert structures to allow runoff to flow under the highway. The intent of this "pass-through" system is to ensure that the functional characteristics of the flood diversion project is not adversely impacted by the future roadway.

3. ***Water***

The West Maui region is served by the County's Department of Water Supply domestic water system. The County water system services the coastal areas from Launiupoko to Kaanapali and from Honokowai to Napili. The County's system includes both surface and groundwater sources.

The source of water for Lahaina are four (4) deepwells located

above Alaeloa and referred to as Napili Wells 1, 2, and 3, and Honokohau Well A. These wells are supplemented by water treatment plants above Honokowai and Lahainaluna High School that draws surface water from the Honolua Ditch and Kanaha Valley. Several miles of 12- and 16-inch lines and two (2) in-line booster stations convey water from these sources to consumers in Lahaina.

Storage is provided by a 1.5 million gallon (MG) storage tank above Wahikuli and a 1.0 MG tank on Lahainaluna Road.

There is an 8-inch line on Shaw Street. This line connects to a 12-inch line on Mill Street that loops back to an 8-inch line on the west side of Honoapiilani Highway.

4. ***Wastewater Systems***

The County's wastewater collection and transmission system and the Lahaina Wastewater Reclamation Facility (LWRF) accommodate the region's wastewater needs. The LWRF, located along Honoapiilani Highway just north of Kaanapali Resort, has a design capacity of 9.0 MGD.

5. ***Solid Waste***

Residential refuse collection is provided by the County's Solid Waste Division. Private refuse collectors provide solid waste disposal services for commercial and institutional accounts. With the exception of the Hana region, residential and commercial solid waste from throughout the island is transported to the Central Maui Landfill at Puunene.

A refuse transfer station located at Olowalu accepts household and green wastes, as well as used oil, for transport to the Central Maui Landfill in Puunene. The disposal of commercial and institutional refuse is not permitted at the Olowalu transfer station.

6. Drainage

a. Existing Watershed and Drainage Conditions

The proposed project alignment gently slopes in an easterly to westerly direction and varies in elevation from about 153 feet amsl at its northern extent to sea level at the outlet of the second channel where it crosses under Honoapiilani Highway and discharges into the ocean.

The proposed project is situated within the lower limits of the 5,250-acre Lahaina Watershed. The Lahaina Watershed is made up of three (3) subwatersheds: the Lahaina subwatershed covers an area of 2,140 acres; the Kauaula subwatershed covers an area of 2,780 acres; and the subwatershed draining into the second outlet channel covers an area of 330 acres.

The Lahaina subwatershed rises from the Pacific Ocean to an elevation of 2,561 feet amsl. The coastal area of the subwatershed is relatively flat and has been developed for residential and commercial uses. The area above the developed flatland to about the 1,400 foot elevation is gently sloping and was formerly utilized for growing sugarcane. The remaining upper area of the Lahaina subwatershed is steep, rising to an elevation of 2,561 feet amsl and was previously utilized for sugarcane cultivation or pasture use.

There are no streams or large well-defined drainageways in the Lahaina subwatershed. Runoff generated in the former sugarcane fields above Lahaina Town is conveyed by numerous small gullies through the former sugarcane fields and cane haul roads, through culverts under Honoapiilani Highway, and into Lahaina Town where it drains into the ocean or ponds in low spots in the vicinity of Maluuluolele Park and commercial areas around Front and Wainee Streets and dissipates through infiltration or evaporation. The storm drainage system within Lahaina Town consists of short, limited capacity culverts which outlet to the ocean.

Kauaula Stream is the major drainageway through the Kauaula subwatershed. The stream, which originates on the western slopes of the West Maui mountains at an elevation of 5,220 feet amsl, follows a westerly course through the subwatershed discharging into the ocean at the Puamana channel located at Makila Point. The upper reaches of the stream are perennial.

The contributory drainage area above the proposed project channel contains two (2) former irrigation reservoirs. The first reservoir is located mauka of the proposed project in the vicinity of the former Wainee Village, while the second reservoir is situated approximately 2,000 feet upslope of the proposed project. The lands within this area were previously planted in sugarcane and are bisected by several dry north-south irrigation ditches. With the exception of a 50-acre area in diversified agricultural use, the remaining lands are now fallow due to the termination of Pioneer Mill's

sugarcane cultivation operations in 1999.

b. ***Interim Improvements***

WMSWCD, with assistance from NRCS, recently constructed an interim diversion channel mauka of the proposed project approximately two (2) miles in length from Lahainaluna Road to Kauaula Stream. The diversion channel connects to the reservoir located near the former Wainee Village. The reservoir was converted into a catchment basin and runoff flows downslope in a southwesterly direction to Kauaula Stream. A second shorter diversion channel was constructed to pick up the runoff from Lahainaluna Road and from the upper diversion channel. The lower diversion channel empties into a large catchment basin and spills over into an existing drainage sump south of the aquatic center.

7. ***Electrical, Telephone and CATV Service***

Electrical, telephone, and cable television (CATV) services for the West Maui region are provided by Maui Electric Company, Ltd., Verizon Hawaii, and Hawaiian Cablevision Company, respectively. Power is currently available on Shaw Street up to the Lahaina Aquatic Center.

Chapter III

Potential Impacts and Mitigation Measures

III. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. IMPACTS TO THE PHYSICAL ENVIRONMENT

1. Land Use

The proposed project will provide a 100-year level of flood protection to a benefitted area which includes single- and multi-family residential land uses, business and commercial land uses, public/quasi-public land uses, and agricultural and former agricultural land uses. Viewed in this context, the potential impacts to surrounding properties from the proposed project are positive.

The floodwater diversion system will, however, require approximately 31.6 acres of land for installation of the floodwater diversion channel and related structures. Of this total, approximately 18 acres of land classified as "Important" agricultural land and approximately 10 acres of land classified as "Other" important agricultural will be lost due to the proposed project. However, the 18 acres of land in the "Important" category are not considered significant in light of the 1,262 acres of potentially productive agricultural land in the Lahaina Watershed.

2. Flora and Fauna

Vegetation on the lands surrounding and within the proposed project channel include weeds, grasses, shrubs, and trees. The scrub vegetation within the proposed project channel developed following the abandonment of sugarcane cultivation and the demolition of the remnant structures in the former Wainee Village. There are no known rare, endangered or threatened species of flora in the vicinity of the proposed project channel that will be adversely affected by the proposed action.

The endemic avifauna in the proposed project area are the Golden Plover (*kolea*), Black Crowned Night Heron (*'auku'u*), and the Hawaiian Owl (*pueo*). Kolea are generally found on mudflats, lawns, and fields, while, 'auku'u frequent water features such as ponds, streams, marshes and lagoons, and pueo hunt rats and mice in the open fields. These species of avifauna are considered endemic, but not endangered. Moreover, since only 31.6 acres of land will be directly utilized for the proposed floodwater diversion channel, of which approximately 28 acres will be maintained as a grassed earthen swale, the impact on habitat of the kolea, *'auku'u*, and pueo are not considered to be significant.

3. ***<u>Nearshore Reef Ecosystems</u>***

During sugarcane cultivation, it was estimated that an average of 3,400 tons of sediment were annually discharged into this ocean area. Although most of the sediment remained in suspension and was transported away from the area by currents, larger sediment particles and sediment aggregates were deposited on the reef. The healthy condition of the seaward reef communities in this area over a nine (9) year observation indicate the effective dispersal of suspended sediments ocean environment subject to wave and current action.

Further field work will be undertaken to assess sediment discharge resulting from land use changes and the shoreline processes and potential impact the proposed project will have on water quality. These findings will be included in the EIS document.

4. ***<u>Archaeological Resources</u>***

As previously indicated, an archaeological inventory survey of the

area required for the floodwater diversion system will be carried out. The findings of the archaeological inventory will be included in the EIS document.

5. *Cultural Impact Assessment*

a. *Settlement Context*

The Lahaina District was considered to be a favorable place by high chiefs because of its natural resource qualities and its proximity to Lana'i and Moloka'i (Rosendahl, 1994). The majority of lands up to approximately the 700-foot elevation comprised a nearly continuous band of agricultural and related habitation features. Initial development of the field systems likely occurred between AD 1200 to 1400. Seasonal dryland agricultural practices eventually evolved to year-round cultivation as water diversion and distribution improvements were implemented.

Historical accounts document Lahaina as an important population center. Such accounts note the continued presence of agriculture through the early 1800's. Crops included taro, potatoes, yams and sugarcane.

With the decline of the whaling industry, which brought a new populace to Lahaina, the sugar industry began to evolve. The sugar industry was developed in the mid-1800's and over the next few years, further developed with the eventual consolidation of multiple smaller mills into what is known today as Pioneer Mill Company, Ltd. As with other sugar plantation communities, the late 1800's and early 1900's saw the rapid expansion and growth of the Pioneer

Mill Company. In the early part of the 20th century, Pioneer Mill controlled approximately 12,500 acres of land (Xamanek Researches, 2000). A 1919 map by W.E. Wall further reveals that approximately 15,000 acres were under sugarcane cultivation by Pioneer Mill (Rosendahl, 1989.) Sugar cultivation areas extended from Ukumehame to Honokowai.

In addition to sugar, pineapple was established as a viable commercial crop in West Maui. Baldwin Packers opened a cannery in Lahaina in 1919 to provide the product processing component of the pineapple industry. Pineapple cultivation lands are generally delineated from Honokowai, north to Honokohau.

The historic significance of Lahaina Town itself is well documented. Lahaina was the home of Kahekili until his death in 1794 (Spenser Mason Architects/Austin Tsutsumi & Associates, Inc., 1988). It became the home of Kamehameha I and was designated the capital of the Hawaiian Kingdom until 1843. Evidence of this historic era is apparent today, and includes remnants of Kamehameha's Brick Palace which was built at Lahaina Harbor in 1803 (Belt Collins & Associates). Today, Lahaina is designated a National Historic Landmark.

b. Floodwater Diversion System Location and Physical Parameters

The proposed floodwater diversion system for the Lahaina Watershed encompasses lands formerly cultivated in

sugarcane. The alignment lies at elevations ranging from approximately 153 feet amsl at the northern intake terminus, to approximately sea level in the vicinity of the second outlet. The only major mauka-makai gulch crossing in the proposed project area is the Kauaula Stream.

c. ***Cultural Impact Considerations***

With regard to the Kauaula Stream which will be traversed by the proposed floodwater diversion channel, it is important to recognize that streams have influenced day-to-day living practices by virtue of their water resource values. Stream waters were crucial for irrigation of taro lo'i (patches), as well as other traditional agricultural crops.

Cultural implications of more recent plantation era use of lands in the vicinity of the proposed floodwater diversion system should also be considered. Such uses include the former Waine'e Village site. Unpublished interviews of former Waine'e Village residents provide an indication of the kind of lifestyle experienced at plantation era camps in the project vicinity. Interviews conducted by Munekiyo & Hiraga, Inc. (on behalf of Amfac), in connection with the historical documentation of the Waine'e Village, involved former residents who resided in the plantation camp between the mid-1920's to the mid-1960's.

The camp lifestyle, as conveyed by informants, reflect early plantation worker housing environs, with recreational and local retail needs provided within the camp. For example, a pool hall, small store, and social hall were a part of the

camp make-up. Vegetable trucks would come through the camp, allowing residents to buy locally grown produce.

The camp and individual homes were equipped with conveniences considered appropriate to the time. A community bath house, kerosene and wood-burning stoves, outdoor toilets, and lanterns for lighting were part of the camp "fixtures". Families raised their own chickens, pigs, and vegetables as a means of supporting themselves.

Residents working on the plantation experienced demanding working conditions. Typical work days would start as early as 4:30 A.M. Despite the hard labor faced by residents, life in the camp was remembered with fondness. A close-knit community and cohesive family groups contributed to these memories.

The experiences of the former Waine'e Camp residents typify the kind of life experienced by Lahaina residents during the sugar's prosperous years.

d. ***Informant Data***

Further interviews with knowledgeable informants will be conducted during the preparation of the EIS to obtain a broader range of cultural resource perspectives in the proposed project area. Interview findings will be presented in the EIS document.

e. ***Assessment of Cultural Impacts***

The EIS document will include an assessment of cultural

impacts. The assessment will consider information provided by additional informant interviews to be conducted.

6. ***Air Quality***

Air quality impacts attributed to the project will include dust generated by short-term construction-related activities. Site work such as clearing, grubbing and grading, and debris channel and concrete channel construction for example, will generate air-borne particulates. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions.

All bare earth areas, including all diversion surfaces, will be vegetated to mitigate dust generated impacts. In the long term, the proposed action is not expected to adversely impact local and regional ambient air quality conditions.

7. ***Water Quality***

Marine water quality testing will be carried out to determine project-related impacts to water quality and the results will be incorporated into the EIS document.

8. ***Noise***

Dominant noise sources in the project area include traffic on Honoapiilani Highway and Lahainaluna Road.

Ambient noise conditions will be temporarily impacted by construction activities. Heavy construction equipment, such as bulldozers, front-end loaders, and material-transport vehicles, will likely be the dominant source of noise during the proposed floodwater diversion channel construction period. Construction

activities will be limited to normal daylight working hours.

Once completed, the proposed project is not anticipated to be a noise source which will adversely impact surrounding properties.

9. Visual Resources

The plan proposes the construction of a floodwater diversion channel, sediment and debris detention basins and a second channel outlet, all of which have been assessed relative to potential impacts on the area's visual resources.

The proposed floodwater diversion system will be located across the slope above Lahaina Town at the 153-foot elevation to sea level and from a distance ranging from approximately 3,000 feet to adjacent to Honoapiilani Highway. The grassed channel embankment may be visible from the highway and Lahaina Town.

The debris basin will be located on Kauaula Stream 200 feet from Honoapiilani Highway and may be visible from the highway. Vegetative screening will be applied to reduce the visual impact of the basin.

The grassed embankment for the outlet channel will parallel Honoapiilani Highway for two-thirds of a mile. Planting along the berm will minimize the visual effects of the embankment. Past cultivation practices by the sugar company have produced landscapes that are similar to those proposed by this plan. Terraces, irrigation storm ditches, and field roads follow the contour of the hillside as does the floodwater diversion system. Large rock piles that dot the former sugarcane fields are similar in form to the

proposed debris basin embankment. As a result, the proposed project is not anticipated to have an adverse impact on visual resources. The reduction of "red water pollution days" in the ocean environment off Lahaina Town is considered a positive visual effect.

B. *IMPACTS TO COMMUNITY SETTING*

1. *Land Use and Community Character*

The proposed floodwater diversion system is bordered by residential properties to the north, former agricultural lands on the immediate west, east, and south and beyond to the west, public/quasi-public, single and multi-family, commercial and recreational lands.

Approximately 210 acres in the watershed are located within the 100-year floodplain. The floodplain includes about 130 acres of urban land that is situated mostly below Honoapiilani Highway.

Some representative depths of flooding that can be expected in Lahaina Town during a 100-year flood event in the future without project conditions are: 1.9 feet in the Front Street area and 1.3 feet in the Wainee Street area. Maximum velocities are between 0.9 feet per second and 0.5 feet per second. Depths of 1.5 feet with velocities up to 2 feet per second can be expected in the Puamana Subdivision adjacent to Kauaula Stream. The foregoing figures may vary depending upon local topography and drainage conditions.

The proposed project will provide a 100-year level of flood protection to the residential communities of Lahaina Town and

Puamana and the commercial core of Lahaina. It will also provide flood protection to the cultural and historic resources in the Lahaina Historic District. The proposed measure will prevent or reduce flood and sediment damage to single- and multi-family residences, business and commercial designated lands, public and quasi-public designated lands, and agricultural designated lands. Viewed in this context, the proposed project will have a positive impact to surrounding land uses.

2. ***Population and Economy***

The proposed project will provide construction employment which will support the construction industry in the short term. Employment provided through the construction phase of project development will also help to support other businesses which are economically linked to the construction industry.

The project is not a stimulus for population in-migration.

The area from the northern boundary of the watershed to Kauaula Stream is valuable to Lahaina's tourism-based commercial operators and for shoreline and nearshore recreational pursuits. Although "red water" episodes will continue to occur as a result of storm runoff along the entire West Maui coastline, peak-suspended sediment concentrations and the duration of the episodes will be significantly reduced in the nearshore marine environment fronting Lahaina Town.

Impacts to coastal-dependent businesses in the watershed due to "red-water" are anticipated to be reduced as sediment loads along the nearshore area fronting Lahaina Town are expected to

decrease with the proposed improvements. Viewed in this context, the proposed project will have a positive effect on local commerce.

3. *Police, Fire and Medical Services*

The proposed project is not anticipated to affect service area limits nor adversely affect capabilities of police, fire and emergency medical operations. The incidence of road closures and traffic problems caused by flooding and sediment deposition will be reduced. During storm events, access by emergency units, such as ambulances, fire and rescue trucks, police vehicles, and utility service trucks, will be improved. The threat to human safety and health caused by floodwater and sediment deposition in lowlying areas will be markedly decreased with installation of the project. Viewed in this context, the proposed project will have a positive impact on police, fire and medical services.

4. *Recreational and Educational Facilities*

The proposed floodwater diversion project will not adversely affect recreational and educational facilities. Regional population changes are not expected with the proposed action. Additionally, the improvements will provide floodwater protection to the Lahaina Aquatic Center and the Lahaina Recreation Center, both located makai of the proposed diversion channel. Coastal recreational opportunities will benefit from the proposed action, as reduction in sediment laden storm waters will result in less turbid post-storm conditions.

C. *IMPACTS TO INFRASTRUCTURE*

1. *Roadways*

The proposed project will not adversely impact roadways. As

mentioned previously, the incidence of road closures and traffic problems caused by flooding and sediment deposition will be reduced.

2. ***Lahaina Bypass***

As previously mentioned, the proposed Lahaina bypass will be located approximately 500 to 1,000 feet mauka (east) of the proposed floodwater diversion system. Runoff generated mauka of the bypass will "pass" through the roadway via culverts and bridges, and will continue downslope to be captured and conveyed by the proposed floodwater diversion channel. Additional hydrologic analysis will be undertaken prior to the EIS document preparation to determine if modification is required to the design and capability of the floodwater diversion system to handle any change in the stormwater runoff caused by the bypass.

3. ***Water***

The proposed project will not affect the water source or distribution system in the West Maui region.

4. ***Wastewater***

The proposed project will not affect the County's wastewater treatment facilities nor distribution system.

5. ***Solid Waste***

Solid waste generated from the construction of the proposed project will not be disposed at the County's Central Maui Landfill. Instead, alternative sites, such as the Maui Demolition and Construction Landfill and Pohakulepo Concrete Recycling Facility, will be utilized. The proposed action is not anticipated to adversely

impact the County's solid waste disposal facilities.

6. ***Drainage***

The proposed project will divert existing stormwater runoff and sedimentation into a floodwater diversion channel which will discharge into two (2) ocean outlets. Site work for the proposed project will involve clearing and grubbing, as well as excavating, filling, and grading. It should be noted that the project is proposed to be implemented in a single phase. Upon completion of site work, all exposed areas will be grassed to minimize soil loss and erosion.

The total average annual runoff volume of both water and sediment discharged at the Kauaula Stream outlet will be decreased. Discharge of very coarse sediment, less than 6 inches in diameter, will be virtually eliminated. Channel mouth blockage problems will be reduced. Average annual fine sediment discharge, clay and silt, will be reduced by about one-quarter. The estimated total average annual sediment discharge, both coarse and fine, at Kauaula Stream will be reduced by approximately 900 tons per year and will be about 50 percent of current rates.

Discharge of both water and sediment will increase at the proposed outlet 3,600 feet south of Kauaula Stream. During the period of sugarcane cultivation, an annual average of 310 tons of sediment entered the ocean near Puamana Park. With the changes in land use in the contributing watershed area, hydrologic assessments will be updated. The updated hydrologic information, along with assessment of potential impacts to water quality and marine life will be included in the EIS document.

7. ***Electrical, Telephone and CATV Service***

The proposed project will not adversely impact electrical, telephone, or CATV services.

D. *CUMULATIVE AND SECONDARY IMPACTS*

A cumulative impact is defined as an impact to the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. For example, actions that involve the construction of public facilities or infrastructure, may stimulate secondary impacts such as population growth and increase demand for public services and infrastructure.

On a long-term basis, the proposed project will benefit the socio-economic fabric of the community by reducing damage to properties from flooding. The proposed project as viewed in the context of a public infrastructure development is not a population generator. While the proposed action is not anticipated to adversely impact infrastructure and public service systems and facilities, cumulative and secondary impacts will be further considered in the preparation of the EIS document.

Chapter IV

Relationship to Governmental Plans, Policies, and Controls

IV. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, established the four (4) major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The subject property is situated within the State "Agricultural" and "Urban" District. See Figure 10. The proposed action is deemed permitted in these districts.

The second outlet structure, is proposed to be located approximately 3,600 feet south of Kauaula Stream. A certified shoreline map will be prepared prior to the filing of the Draft EIS document to verify the location of the proposed outlet structure relative to the certified shoreline. Should the outlet structure encroach into areas makai of the certified shoreline, a Conservation District Use Permit will be required from the State Board of Land and Natural Resources. Should this condition arise, the EIS document will include an analysis of the proposed action relative to Conservation District use criteria.

B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. As reflected by Section 226-13, HRS, the plan outlines objectives and policies for the physical environment, specifically land, air and water quality.

More specifically, the State objectives include the maintenance and pursuit of improved quality in Hawaii's land, air and water resources. To

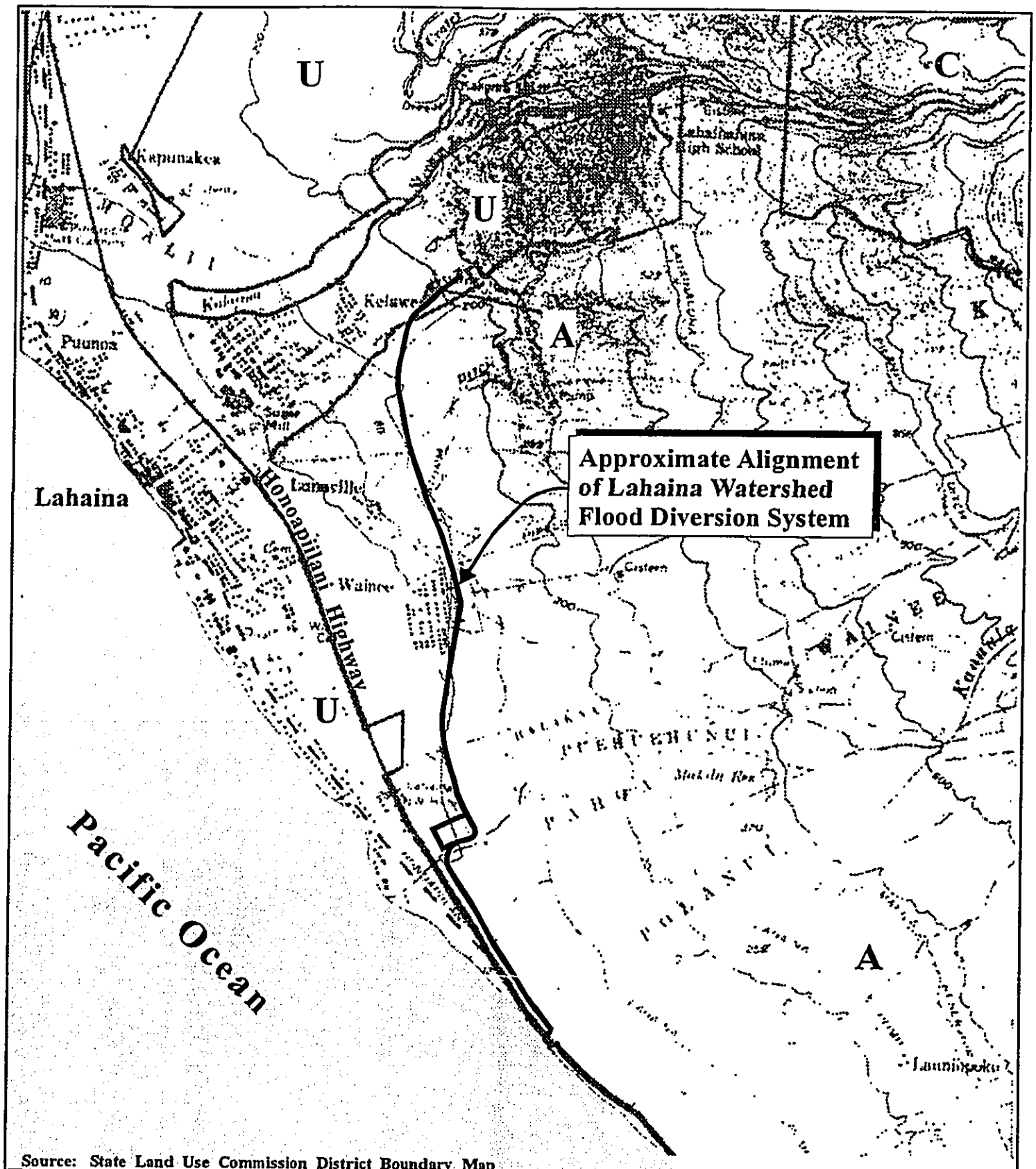

Figure 10 Lahaina Watershed Flood Control Project

State Land Use District Classification

NOT TO SCALE

Prepared for: County of Maui, Department of Public Works and Waste Management

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achieve this objective, it shall be the State's policy to:

> Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters (Hawaii State Plan, Section 226-13(a)(b)(5)).

The proposed project is in keeping with the Hawaii State Plan objective to improve land resources.

C. ***MAUI COUNTY GENERAL PLAN***

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter, "The purpose of the General Plan is to recognize and state the major problems and opportunities concerning the needs and the development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns and characteristics of future development".

The proposed action is in keeping with the following General Plan objectives and policies:

Objectives:

1. To preserve and protect the County's unique and fragile environmental resources.

2. To create an atmosphere which will convey a sense of security for all residents and visitors and aid in the protection of life and property.

Policies:

1. Support programs to reduce air, land and water pollution.

2. Support programs to protect rare and endangered species and programs which will enhance their habitat.

3. Maintain a proper state of preparedness for man-made or natural disasters.

D. *WEST MAUI COMMUNITY PLAN*

Nine (9) community plan regions have been established in Maui County. Each region's growth and development is guided by a Community Plan, which contain objectives and policies drafted in accordance with the County General Plan. The purpose of the Community Plan is to outline a relatively detailed agenda for carrying out these objectives.

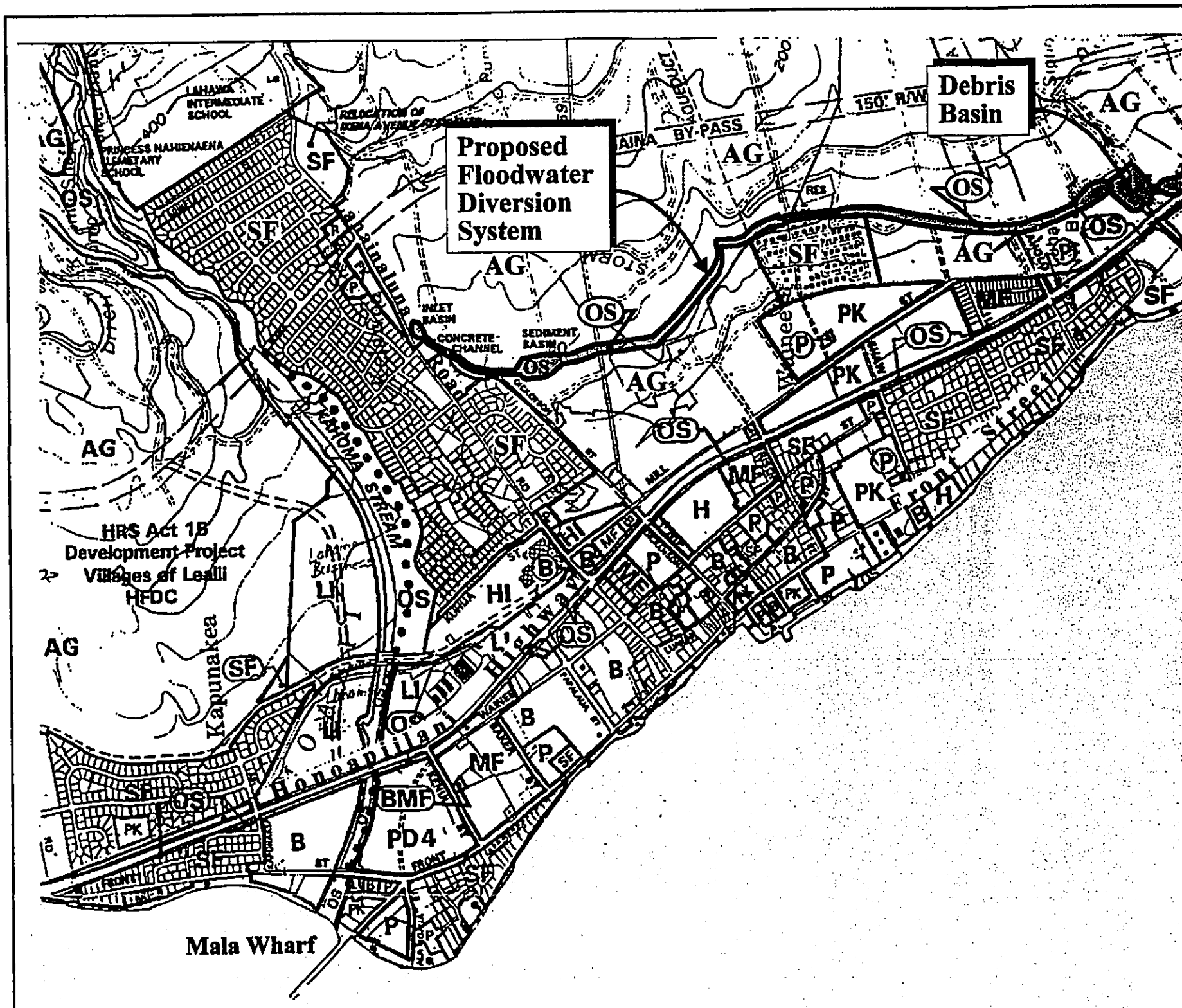
The proposed project falls within the jurisdiction of the West Maui Community Plan adopted in 1996. Land use guidelines are set forth by the Lahaina Community Plan Land Use Map. See Figure 11. The proposed floodwater diversion channel project has been incorporated into the Lahaina Community Plan Land Use Map and is designated for "Open Space" use.

The proposed project is in keeping with the following goals, objectives, and policies of the West Maui Community Plan.

Goals:

A clean and attractive physical, natural and marine environment in which man-made developments on or alterations to the natural and marine environment are based on sound environmental and ecological practices, and important scenic and open space resources are preserved and protected for public use and enjoyment.

Timely and environmentally sound planning, development, and



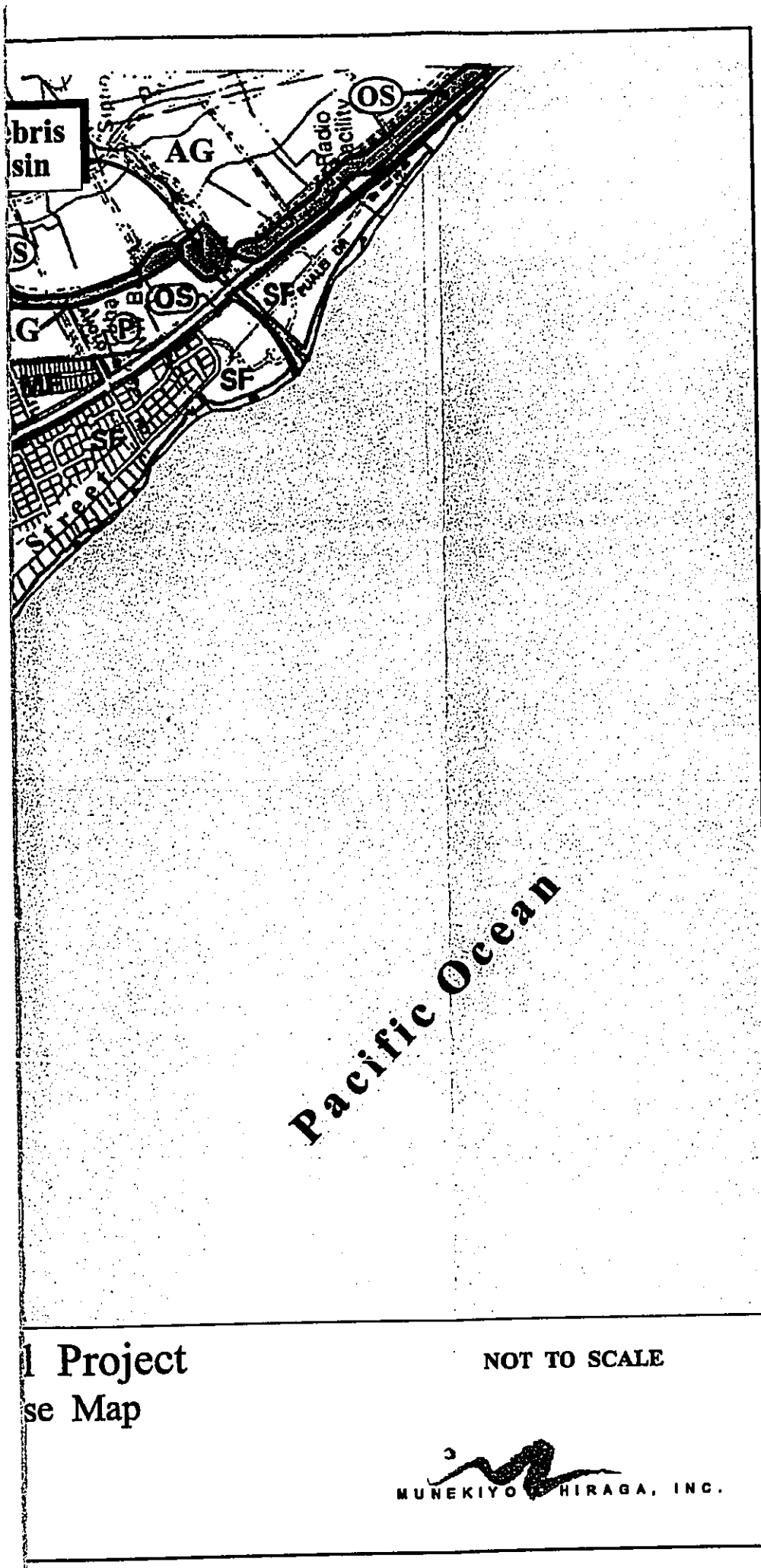
Source: County of Maui, Department of Planning

Figure 11

Lahaina Watershed Flood Control Project

West Maui Community Plan Land Use Map

Prepared for: County of Maui, Department of Public Works and Waste Management



l Project
se Map

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maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal and efficient transportation systems which meets the needs of the community.

Objectives and Policies:

1. Protect the quality of nearshore and offshore waters.

2. Promote drainage and stormwater management practices that prevent flooding and protect coastal water quality.

3. Protect and enhance the quality of the marine environment.

4. Support the construction of the Lahaina Watershed Drainage Improvement Project above Wainee Village and desilting basins as shown on the land use map.

E. COUNTY ZONING

The lands underlying the proposed flood diversion system are zoned "Agricultural" by Maui County Zoning. The proposed action is considered an integral element for agricultural land conservation. In keeping with the County's Agricultural District Ordinance (Chapter 19.30A), the earthen diversion channel will be grass planted. The objective of the channel is to manage soil erosion and stormwater runoff. The benefits of management of agricultural lands extend to the urban lands makai, as sediment-laden stormwater will be directed to desilting and debris basins for safe discharge.

F. COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA

The Hawaii Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawaii's coastal zone. It is noted that a portion of the project, at the second outlet, falls within the County of Maui's Special Management Area.

As set forth in Chapter 205A, HRS, and rules of the Maui Planning Commission, this section addresses the project's relationship to applicable coastal zone management considerations.

(1) Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities,

where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

Response: The project itself is not anticipated to adversely impact demands on regional recreational facilities. In addition, the project is not anticipated to adversely impact coastal recreational opportunities and resources. The proposed project will help to enhance the marine habitat by reducing the sedimentation caused by flooding coastal waters. The proposed project will also help improve water quality and thereby enhance the recreational value of coastal waters. Viewed in this context, the proposed project will have a positive impact to the West Maui region's recreational value.

(2) ***Historic Resources***

Objective:

Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

(A) Identify and analyze significant archeological resources;
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Response: An archaeological inventory survey will be carried out

in preparation of the EIS document in order to identify, protect and preserve historic resources.

(3) ***Scenic and Open Space Resources***

Objectives:

Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The proposed floodwater diversion system will be located along the slope above Lahaina Town at the 153 foot amsl elevation and approximately 1,500 feet uphill and gradually sloping in a southwesterly direction to Kauaula Stream and then paralleling the Honoapiilani Highway for a distance of 3,600 feet. Past agricultural practices for sugar cultivation have produced landscape forms that are similar to those of the proposed project. Terraces, irrigation and storm ditches, grassed swales, and field roads follow the contour of the hillside, as will the floodwater diversion system. Large rock piles that dot the former sugarcane fields are similar in form to the proposed debris basin embank. Vegetative screening and application of architectural concrete colors will be applied to concrete sections where appropriate, to mitigate impact on visual

resources.

(4) ***Coastal Ecosystems***

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: The condition and characteristics of the existing coastal environment will be studied. The results of the study will be incorporated in the EIS document.

(5) ***Economic Uses***

Objectives:

Provide public or private facilities and improvements important to the State's economy in suitable locations.

***Policies*:**

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Response: The alignment of the proposed floodwater diversion system follows the natural contours where possible and is suitably located to divert existing runoff patterns. In this context, the proposed floodwater diversion system is suitably located to protect residences, businesses and historic properties in Lahaina Town. The proposed action will mitigate adverse economic impacts associated with flooding which has historically affected residences, businesses, and public/quasi-public uses makai of Honoapiilani Highway.

(6) Coastal Hazards

***Objectives*:**

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
(D) Prevent coastal flooding from inland projects.

Response: The proposed project is necessary to prevent coastal flooding from inland stormwater runoff. The proposed project will reduce hazard to life and damage to property caused by flooding within the Lahaina Watershed.

(7) Managing Development

Objectives:

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
(B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: Public information meetings have been incorporated into the EIS process. Further opportunities for public understanding of the proposed project are provided for in

accordance with Chapter 343, HRS, notice and public review provisions. Opportunity for public review and participation will also be provided pursuant to Chapter 205A HRS and Sections 12-202-10 and 11 Rules of Practice and Procedures for the Maui Planning Commission, Special Management Area.

(8) Public Participation

Objectives:

Stimulate public awareness, education, and participation in coastal management.

Policies:

(A) Promote public involvement in coastal zone management processes;
(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: As previously mentioned, public information meetings have been incorporated into the EIS process and public awareness of coastal management objectives and its relationship to stormwater runoff will be achieved as a result of the public information program. This EIS document will be processed in accordance with Chapter 343, HRS, and opportunity for comment by agencies and the public will be provided. In addition, opportunity for public review and participation will also be provided pursuant to Chapter 205A HRS and Sections 12-202-10 and 11 Rules of Practice and Procedures for the Maui Planning Commission, Special Management Area.

(9) ***Beach Protection***

Objectives:

Protect beaches for public use and recreation.

Policies:

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: In broad objective terms, the proposed project in the long term will help protect beach resources from flood damage and reduce the adverse impact to recreation caused by "red tide" from upland sedimentation in stormwater runoff. In order to achieve this objective, structures will have to be constructed within the shoreline setback area. The EIS document will address issues relating to coastal processes.

(10) ***Marine Resources***

Objectives:

Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(B) Coordinate the management of marine and coastal

resources and activities to improve effectiveness and efficiency;

(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: As part of the EIS document preparation, marine studies will be carried out jointly with Federal and local sponsors to increase the body of knowledge regarding understanding of ocean processes, marine life and marine inventory information in the West Maui region. As appropriate, these findings will be applied to assess potential adverse impacts to marine resources and identification of mitigative measures to protect the marine resources and to assure their sustainability.

G. *SHORELINE SETBACK VARIANCE*

A Shoreline Setback Variance will be required for the second outlet. A certified shoreline map will be prepared prior to the filing of the Draft EIS. This map will be used to provide design guidance for the second outlet. An assessment of the County's shoreline setback criteria relative to the outlet design will be included in the Draft EIS.

H. *OTHER APPROVALS*

Prior to the filing of the Draft EIS document, coordination will be undertaken with the U.S. Department of the Army regarding permitting requirements associated with work within the Kauaula Stream (i.e., debris basin construction). Similar coordination with the State Department of

Health and State Office of Planning will be conducted to determine the applicability of Section 401 Water Quality Certification and Coastal Zone Management Consistency approval requirements, respectively. Additionally, coordination with the State Commission on Water Resource Management will be undertaken to determine the applicability of Stream Channel Alteration Permit requirements.

The results of the foregoing coordination will be incorporated in the EIS document.

I. ***NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COORDINATION***

Preparation of the EIS document will be coordinated with the USDA, NRCS pursuant to Council of Environmental Quality Regulations (40 CRF §§ 1500-1508) implementing the procedural provisions of the National Environmental Policy Act. Federal agency consultation will be undertaken to meet the regulations under the Endangered Species Act with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service; National Historic Properties Act Consultations under Section 106 with the State Historic Preservation Division; and others as required to address applicable Federal Acts, Executive Orders and policies such as Civil Rights Act, Title VI, Clean Water Act, Floodplain Management Act and Wetlands Protection Act. The results of the foregoing coordination will be incorporated in the EIS document.

Chapter V

Summary of Adverse Environmental Effects Which Cannot Be Avoided

V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Implementation of the proposed project will result in temporary construction-related impacts as described in Chapter III, Potential Impacts and Mitigation Measures.

Temporary noise and air quality impacts are typically associated with construction activities. These effects will be mitigated through appropriate construction management practices.

Assessment of shoreline conditions, characteristics, and coastal processes, nearshore marine water quality assessment, and nearshore marine biological investigations, as well as archaeological inventory and survey will be carried out to identify potential impacts resulting from the proposed project and to determine appropriate mitigation measures. An assessment of these issues will be addressed by the EIS document.

Chapter VI

Alternatives to the Proposed Action

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. PREFERRED ALTERNATIVE

The proposed project represents the preferred alternative. This alternative provides a cost-effective and technically viable solution to flooding and flood-related problems of the Lahaina Watershed.

B. LAHAINA TOWN FLOOD CONTROL OUTLET ALTERNATIVE

Several alternatives were considered which incorporated an outlet channel through the Lahaina Town area. High project costs and environmental concerns about sediment discharge within the fringing reef fronting the town area gave low priority to these alternatives.

C. KAUAULA STREAM SINGLE OUTLET

Kauaula Stream presented many advantages as an outlet for the floodwater diversion channel. The Kauaula subwatershed discharge is nearly four (4) times greater than the discharge of the Lahaina subwatershed. Therefore, the stream capacity and the ocean outlet have been naturally developed to accommodate high runoff and high sediment concentrations. The Kauaula subwatershed is greater in length than the Lahaina subwatershed and thus the peak discharges would not occur at the same time. The Lahaina peak discharge would pass well before that from the Kauaula subwatershed. However, concerns about excessive sediment pollution at the Puamana outlet and possible construction impacts of the Puamana channel, and maintenance of the Puamana channel resulted in placing this alternative as a lower priority option.

D. NO ACTION ALTERNATIVE

In light of the established need for flood control measures in the Lahaina Watershed, the "no action alternative" does not represent a responsible option towards alleviating the problems and damage caused by periodic

flooding and associated sediment damage. Businesses and residences located in the Lahaina Historic District and floodplain will continue to be damaged by flooding. Honoapiilani Highway and local streets will continue to be closed to traffic and clean-up of the roads and public areas will continue to be required following flooding. Numerous small drainageways will continue to transport fine sediments into the nearshore reef area fronting Lahaina Town causing discoloration of the water and adversely affecting the reef biota. In light of the established need for the proposed project the "no action" alternative does not represent a responsible option towards flood control in the Lahaina Watershed.

E. DEFERRED ACTION ALTERNATIVE

A "deferred action" alternative will have similar consequences as a "no action" alternative as problems and damage resulting from flooding will continue to persist and potentially increase. Deferring implementation of the proposed flood control improvements may also result in higher implementation costs in the future due to inflation.

Chapter VII

Irreversible and Irretrievable Commitments of Resources

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of the proposed project would involve the commitment of land and funds. In addition, labor and materials resources would be expended as part of the project's construction phase. Commitment of these resources are considered irreversible and irretrievable. This commitment, however, is considered appropriate in the context of protecting the community from flooding within the Lahaina Watershed.

Chapter VIII

Findings and Conclusions

VIII. FINDINGS AND CONCLUSIONS

Every phase of the proposed action, expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action have been evaluated in accordance with the Significance Criteria of Section 11-200-12 of the Administrative Rules. Discussion of project conformance to the criteria is noted as follows:

1. ***No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resource Would Occur as a Result of the Proposed Project***

   A marine survey and assessment, as well as an archaeological inventory survey will be carried out to address issues relating to loss or destruction of natural or cultural resources.

   In addition, in the context of the area's land use history and surrounding existing developments, the implementation of the proposed project will be assessed during the EIS preparation phase. Additional informant interviews will be conducted to complete the project's cultural impact assessment.

2. ***The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment***

   The proposed project will not curtail the range of beneficial uses of the environment. There are no impacts attributed to the project which will limit the use of surrounding lands. Environmental parameters such as air quality will similarly not be adversely affected by the project. Adverse effects on scenic views resulting from the proposed project can be mitigated by landscape screening and use of architecturally colored concrete where appropriate. Assessment on water quality parameters will be investigated during the EIS preparation phase and the findings will be used to assess potential impacts and mitigation to ensure the proposed

action will not curtail the beneficial uses of the environment.

3. ***The Proposed Action Does Not Conflict With the State's Long-Term Environmental Policies or Goals or Guidelines as Expressed in Chapter 344, HRS***

The State Environmental Policy and Guidelines are set forth in Chapter 344, HRS. Upon completion of investigations for the EIS document, an assessment of the proposed action relative to the policies and guidelines will be undertaken.

4. ***The Economic or Social Welfare of the Community or State Would Not Be Substantially Affected***

The project will directly benefit the local economy by providing construction and construction-related employment. In the long term, the project will support the local economy through the contribution of salaries, wages, benefits and taxes, as well as through the purchases of goods and services. The proposed project will have a beneficial effect upon the economy by reducing the damage and loss to businesses caused by flooding conditions.

5. ***The Proposed Action Does Not Affect Public Health***

No adverse impacts to the public's health and welfare are anticipated as a result of the proposed project.

6. ***No Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities, are Anticipated***

The proposed project is not a source of new population to the region. In this regard, the proposed project is not anticipated to adversely affect public services in the region, such as schools, police, and fire protection.

7. ***No Substantial Degradation of Environmental Quality is Anticipated***

Excavation and grading activities will create temporary short-term nuisances related to noise and dust. Appropriate dust control and noise mitigation measures will be implemented during construction to ensure that fugitive dust and noise generated in connection with construction is minimized.

Debris and sedimentation channels have been designed to mitigate impacts to downstream properties and coastal ecosystems.

Marine processes and marine water quality will be investigated as part of the EIS preparation phase and appropriate mitigation measures will be identified.

8. ***The Proposed Action Does Not Involve a Commitment to Larger Actions, Nor Would Cumulative Impacts Result in Considerable Effects On The Environment***

There are no additional development components associated with the project. Accordingly, the impacts to be assessed in the EIS document will be based on the entire action.

9. ***No Rare, Threatened or Endangered Species or Their Habitats Would be Adversely Affected By The Proposed Action***

There are no known terrestrial species of flora and fauna along the diversion corridor. A marine biological assessment will be conducted as an element of the EIS preparation phase. The findings of this study will be incorporated in the EIS document.

10. ***Air Quality, Water Quality or Ambient Noise Levels Would Not Be Detrimentally Affected By The Proposed Project***

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, and installation of dust screens will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, will be used during construction activities.

The proposed project will reduce the water pollution caused by sedimentation in stormwater runoff in the ocean fronting the Lahaina Watershed. In the long term, the proposed project is not anticipated to have a significant impact on air quality or ambient noise conditions. Long-term impacts on water quality resulting from the proposed project will be studied and the findings will be incorporated into the EIS document.

11. ***The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such As Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters***

The project site is not located within any environmentally sensitive areas. The proposed project will help reduce the flood hazard within the watershed area. Coastal water quality assessment parameters will be addressed in the EIS document.

12. ***The Proposed Project Will Not Substantially Affect Scenic Vistas and Viewplanes Identified in County or State Plans or Studies***

Adverse effects to coastal scenic and open space resources and scenic view corridors resulting from the proposed project will be mitigated by landscaping and application of architecturally colored and treated concrete

where necessary.

13. ***The Proposed Project Will Not Require Substantial Energy Consumption***

The subject project will involve the commitment of fuel for construction equipment, vehicles, and machinery during construction and maintenance activities.

However, in the context of the region's overall energy consumption, the project's demand for energy is not considered excessive, nor is it considered substantial.

The proposed action is considered to be a major infrastructure improvement affecting the Lahaina Watershed area. While the benefits of the project are deemed substantial, the County of Maui, Department of Public Works and Waste Management, the U.S. Department of Agriculture, Natural Resources Conservation Service and the West Maui Soil and Water Conservation District have cooperatively determined that the preparation of an EIS is appropriate to ensure thorough environmental analysis and public input.

Chapter IX

List of Permits and Approvals

IX. LIST OF PERMITS AND APPROVALS

The following Federal, State and County permits and approvals may be required for project implementation:

Federal Permits

1. Department of Army Permit (U.S. Army Corps of Engineers)

State of Hawaii

1. Section 401 Water Quality Certification (Department of Health)
2. Coastal Zone Management Consistency Approval (State Office of Planning)
3. Stream Channel Alteration Permit (State Commission on Water Resource Management)
4. State Work-to-Perform Permit (Department of Transportation)
5. Conservation District Use Permit (Department of Land and Natural Resources)

County of Maui

1. Special Management Area Use Permit (Maui Planning Commission)
2. Shoreline Setback Variance Approval (Maui Planning Commission)
3. Grading and Grubbing Permit (Department of Public Works and Waste Management)

Coordination with the appropriate administering agencies will be conducted during the preparation of the EIS document.

Chapter X

Initial Public Information Meeting of February 21, 2002

X. INITIAL PUBLIC INFORMATION MEETING OF FEBRUARY 21, 2002

Prior to the preparation and filing of the EIS Preparation Notice, a public information meeting was held to present the project's design parameters and to receive early input for EIS preparation purposes. The meeting was held at the Lahaina Intermediate School Cafeteria with approximately 60 people in attendance. Representatives of the County of Maui Department of Public Works and Waste Management, U.S. Department of Agriculture Natural Resources Conservation Service, and the West Maui Soil and Water Conservation District, along with project consultants, presented the project and responded to questions and received comments regarding the proposal.

Notification of the meeting was made through letters sent directly to affected landowners, community organizations and interested individuals. In addition, notification of the meeting was made through local newspapers.

A summary of comments received at the meeting follows.

1. A number of meeting participants expressed concern regarding property damage caused by the recent flooding in Lahaina. Concern was also noted regarding the timeframe for plan implementation. The project consultant explained that the EIS process is estimated to take about 15 months, with an additional 12 months to complete project permitting and design. Construction would take about 12 months to complete.

2. Representatives of the WMSWCD explained that they have sponsored temporary improvements to provide interim mitigation against flooding. A temporary diversion channel was constructed in the vicinity of the proposed Lahaina floodwater diversion channel on Kamehameha Schools' land. The interim measure involved construction of over 2 miles of diversion channel and utilization of 3 basins,one of which is the reservoir above the former Wainee Village. These measures, although temporary (until the proposed project is completed) helped to divert a good portion of the recent storm flows.

3. WMSWCD representatives noted that maintenance of the interim

measures will need to continue to ensure the functional integrity of the system. The work carried out for the interim improvements was funded by government grants (319P) and matching private funds. Much of the work done in constructing and maintaining the system is through volunteer efforts.

4. Meeting participants expressed concern that the temporary measures were not effective in preventing flooding in January of 2002. WMSWCD representatives stated that they will work with landowners to clean up debris basins to improve the functional integrity of the system.

5. Questions regarding drainage improvements in Lahaina town were asked by meeting participants. Representatives of the Department of Public Works and Waste Management explained that the County's Drainline "F" project is intended to take stormwater runoff from below the proposed floodwater diversion system to an ocean outlet in the vicinity of Maluuluolele Park. They noted that the Lahaina floodwater diversion project will work hand-in-hand with the Drainline "F" project.

6. Meeting participants commented on the need for upland landowners to implement and maintain best management practices for soil erosion control, including the use of terraces.

7. In light of flooding incidents in 1997 and in 2002, the need for the project was confirmed. In this regard, WMSWCD representatives confirmed that construction funding is being addressed at this time. They asked meeting participants to communicate with their congressional representatives to request support for project funding.

Chapter XI

Agencies and Organizations to be Consulted in the Preparation of the Draft EIS

XI. AGENCIES AND ORGANIZATIONS TO BE CONSULTED IN THE PREPARATION OF THE DRAFT EIS

The following agencies, organizations and individuals will be consulted in the preparation of the Draft EIS. Consultation with the listed Native Hawaiian organizations will take place during the Draft EIS process in compliance with Section 106, National Historic Preservation Act. These agencies and organizations will receive copies of the EIS Preparation Notice.

1. William Lennan
Department of the Army
U.S. Army Engineer District, Hnl.
Attn: Operations Division
Bldg. T-1, Room 105
Fort Shafter, Hawaii 96858-5440

2. Robert P. Smith
Pacific Islands Manager
U. S. Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96850

3. David Blane, Director
State of Hawaii
Office of Planning
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

4. Denis Lau, Chief
Clean Water Branch
State of Hawaii
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawaii 96814

5. Herbert Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793

6. Gilbert Coloma-Agaran
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

7. Don Hibbard
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707

8. Brian Minaai, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

9. Fred Cajigal, Maui District Engineer
State of Hawaii
Department of Transportation
Highways Division
650 Palapala Drive
Kahului, Hawaii 96732

10. Colin Kippen, Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

11. Clayton Ishikawa, Chief
County of Maui
Department of Fire Control
200 Dairy Road
Kahului, Hawaii 96732

12. Alice Lee, Director
County of Maui
Department of Housing and Human Concerns
200 S. High Street
Wailuku, Hawaii 96793

13. John Min, Director
County of Maui
Department of Planning
2200 Main Street, Suite 610
Wailuku, Hawaii 96793

14. Cultural Resources Commission
c/o Maui Planning Department
2200 Main Street, Suite 335
Wailuku, Hawaii 96793

15. Floyd Miyazono, Director
County of Maui
Department of Parks and Recreation
1580-C Kaahumanu Avenue
Wailuku, Hawaii 96793

16. Tom Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

17. David Goode, Director
County of Maui
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

18. David Craddick, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793

19. **Maui Electric Company, Ltd.**
P. O. Box 398
Kahului, Hawaii 96732

20. Lahaina Town Action Committee
648 Wharf Street, Suite 102
Lahaina, Hawaii 96761

21. West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawaii 96761

22. Lahaina Restoration Foundation
695 Front Street, 2nd Floor
Lahaina, Hawaii 96761

23. Richard Meaney
General Manager
Puamana Community Association
34 Puailima Place
Lahaina, Hawaii 96761

24. Jeffrey Melrose
Land Planner/Land Manager
Kamehameha Schools
P.O. Box 495
Pa'auilo, Hawaii 96776

25. Mr. Kimo Falconer
Pioneer Mill
349 Lahainaluna Road
Lahaina, Hawaii 96761

26. Councilmember JoAnne Johnson
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

27. Steve Lovelette
Executive Vice President
Amfac/JMB Hawaii, LLC
2530 Kekaa Drive
Lahaina, Hawaii 96761

28. Buddy Nobriga
Chair, West Maui Soil and Water Conservation District
P.O. Box 1170
Wailuku, Hawaii 96793

29. Mr. Jim Riley
Launiupoko Associates
173 Hoohana, Suite 201
Kahului, Hawaii 96732

30. Mr. Glenn Shishido
State of Hawaii
Division of Forestry and Wildlife
54 South High Street
Wailuku, Hawaii 96793

31. Mr. William Shauney
Disaster Services American Red Cross
1032 S. Kihei Road #B502
Kihei, Hawaii 96753

32. Terryl Vencl, Executive Director
Maui Hotel Association
1727 Wili Pa Loop
Wailuku, Hawaii 96793

33. Carolyn Nuyen
Lahaina Public Library
680 Wharf Street
Lahaina, Hawaii 96761

34. Akoni Akana, Executive Director
Friends of Moku'ula
505 Front Street
Lahaina, Hawaii 96761

35. Thelma Shimaoka, Community Resource Coordinator
Office of Hawaiian Affairs
140 Ho'ohana Street, Suite 206
Kahului, Hawaii 96732

36. Vanessa Medeiros, District Supervisor
Department of Hawaiian Home Lands
Maui District Office
1063 East Main Street, Suite C-206
Wailuku, Hawaii 96793

37. Rose Marie Duey, Island Representative
Alu Like, Inc.
Maui Island Center
1977 Kaohu Street
Wailuku, Hawaii 96793

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Munekiyo, Arakawa & Hiraga, Inc., Draft Environmental Assessment - Napili Villas, August 2000.

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Rosendahl, Paul H., Ph.D., Archaeological Inventory Survey Lahaina Bypass Highway New Connector Roads Project Area, prepared for Amfac/JMB Hawaii, Inc. and Munekiyo, Arakawa & Hiraga, Inc., January 1994.

Rosendahl, Paul H., Ph.D., Archaeological Inventory Survey, Lahaina Master Planned Project Site, Land of Wahikuli, Lahaina District, Island of Maui, prepared for Housing Finance and Development Corporation, October 1989.

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University of Hawaii, Department of Geography, Atlas of Hawaii, Third Edition, 1999.

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U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, 1972.

Xamanek Researches, An Archaeological Inventory Survey of the West Side Resource Center (Ka Hale A Ke Ola), Lands of Ko'oka, Waine'e, Pua'a nui, Lahaina District, Maui Island (TMK 4-6-15:por. 1), prepared for Munekiyo, Arakawa & Hiraga, Inc., November 2000.